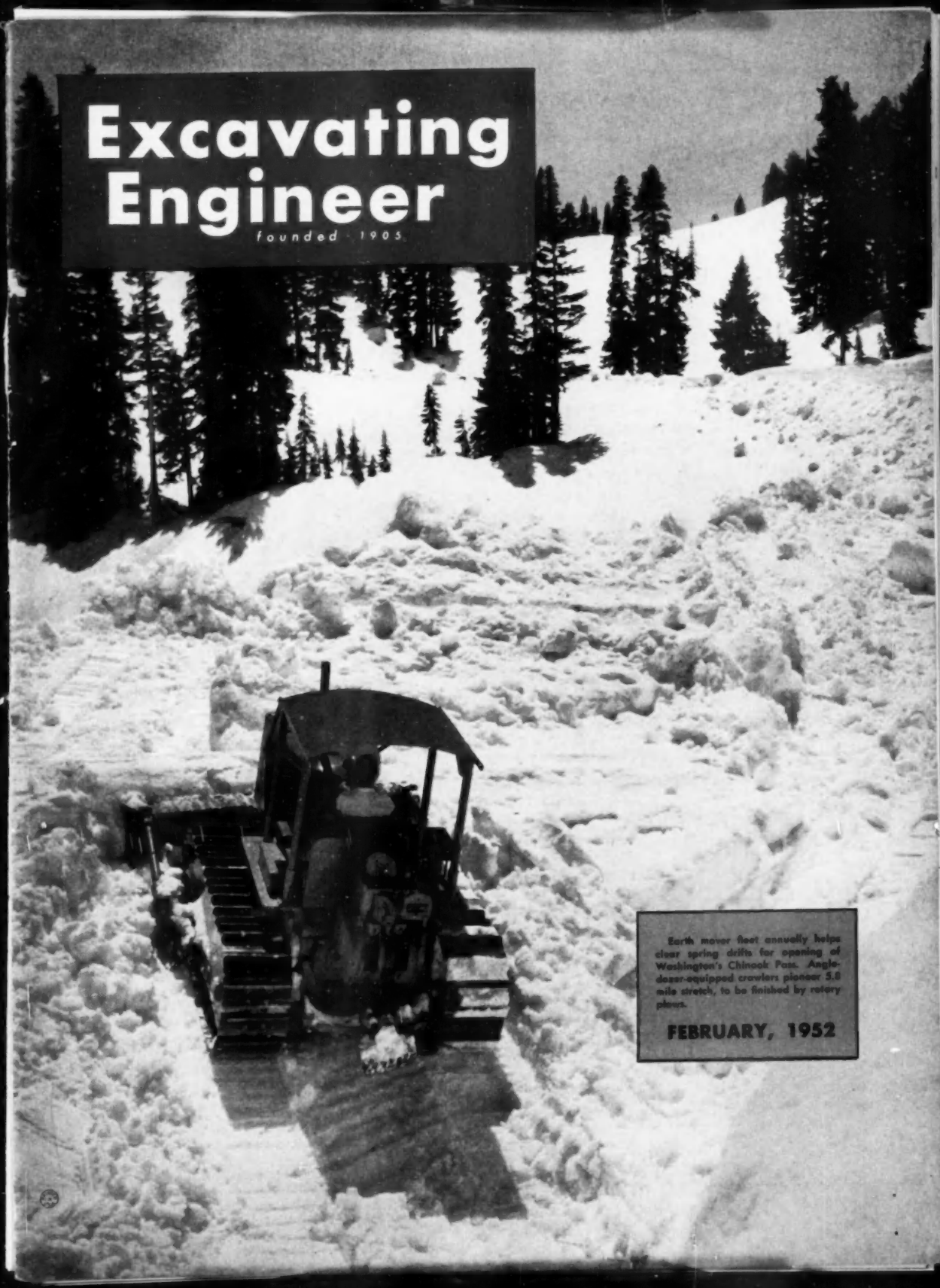
Excavating Engineer

founded · 1905



Earth mover fleet annually helps clear spring drifts for opening of Washington's Chinook Pass. Angle-dozer-equipped crawlers pioneer 5.8 mile stretch, to be finished by rotary plows.

FEBRUARY, 1952

Save Valuable Working Time With Bucyrus-Erie Blast Hole Drills

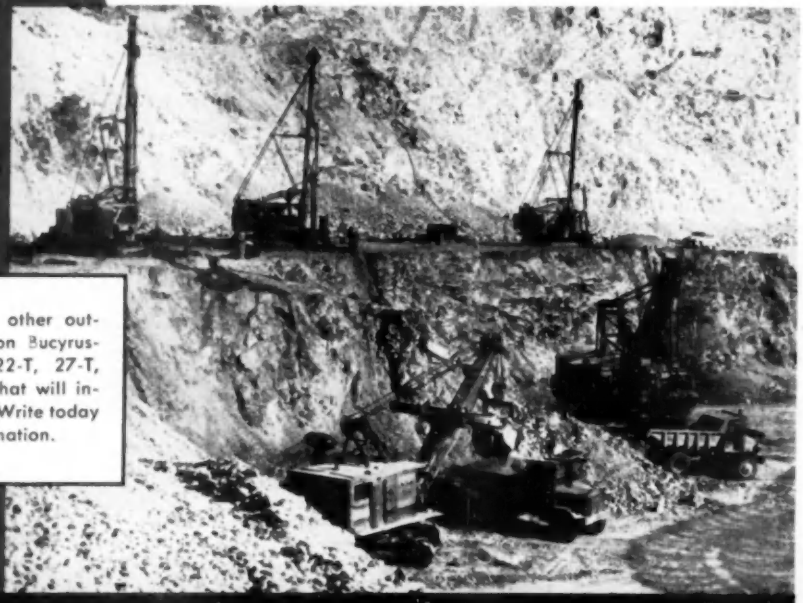
THE speed with which your blast hole drill can be set up and readied for work directly affects the tonnage of ore produced from your open pit mining operations — and correspondingly affects profits. Frequent set-ups and tool changes take up a considerable portion of your blast hole driller's time. But with a Bucyrus-Erie drill you change much of the costly moving and tool-changing delays to productive drilling time. Here's why:

1. Caterpiller-mounted Bucyrus-Eries move quickly between locations . . . travel over all types of ground surfaces, across rough pit floors, and up grades of better than 30%.

2. Set-ups and leveling are quick and easy, even under adverse ground conditions. Hydraulic jacks (standard equipment on the 42-T; optional on the 29-T) eliminate elaborate ground preparations, blocking and cribbing. Big savings in leveling time mean substantial increases in production.

3. Tool-changing time is reduced 30% to 50% with a built-in tool wrench, offered as standard equipment on the 27-T, 29-T and 42-T. The wrench is hand-operated on the 27-T and 29-T; power-driven on the 42-T.

● In Southern California three 29-T drills put down 9-in. blast holes in an open pit iron mine while Bucyrus-Erie shovels load ore to trucks.



There are many other outstanding features on Bucyrus-Erie drills — the 22-T, 27-T, 29-T and 42-T — that will interest you greatly. Write today for complete information.

45551C

BUCYRUS ERIE

South Milwaukee, Wisconsin

Another Goodyear

EYE-OPENER

—in the public interest—and yours!

To help you help America get the *modern* highway system we all need so desperately, here is another in Goodyear's precedent-setting series of two-page, full-color advertisements in multimillion circulation news magazines.

Another reason why it pays always to BUY and SPECIFY

GOODYEAR

THE GREATEST NAME IN RUBBER

ACCO

Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles, New York, Odessa, Tex., Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

AMERICAN CHAIN & CABLE
AMERICAN CABLE DIVISION

In Business for Your Safety

ALSO MAKERS OF THE COMPLETE LINE OF
ACCO Registered
WIRE ROPE SLINGS

Advertisers IN THIS ISSUE

Allis-Chalmers Mfg. Co. 6, 7
American Chain & Cable Co., American Cable Div. 2
American Hoist & Derrick Co. 32, 53
American Steel Dredge Co., Inc. 50

Bucyrus-Erie Co. ..... 2nd Cover, 9, 24, 25, 38, 39

Caterpillar Tractor Co. 48
Cooper-Bessemer Corp., The 8

Drake-Williams-Mount 54

Erie Steel Construction Co. 40
Euclid Road Machinery Co., The 45

For Sale (Classified) 55
Fort Dodge Tent & Awning Co. 46

General Electric Co. 31
Goodyear Tire & Rubber Co., The ... 1

Hayward Co., The 44

Ingersoll-Rand ..... 3rd Cover
International Harvester Co. 28, 29

Jaeger Machine Co., The 30
Johnson Co., C. S. 42, 43

Koehring Co. 42, 43

LaCrosse Trailer Corp. 27
Leschen, A., & Sons Rope Co. 33
LeTourneau, R. G., Inc. 34, 35
Lippmann Engineering Works .. 4th Cover

Macwhyte Co 41
Marion Power Shovel Co 51

Northwest Engineering Co. 5

Rogers Bros. Corp. 36

Sauerman Bros., Inc. 52
Schield Bantam Co. 47

Wellman Engineering Co., The 37

Excavating Engineer

founded 1905

CONTENTS

Volume XLVII No. 2 **February, 1952**

Central Valley's Hurry-Up Pipeliners—by Robert J. Green 10

A specialist in its field, United Concrete Pipe Corp. efficiently lays 120 miles of water distribution pipeline in California's Central Valley. The $1.6 million contract for the Bureau of Reclamation taps Friant-Kern canal.

Draglines Cut Canal Costs at Warm Springs—by Ray Day 16

Canal upkeep costs are exceptionally low for farmers in this Oregon irrigation district. Here's how an alert superintendent and an expert crew keep draglines busy, canals filled and assessments down.

Push Grapevine Dam Closure—by Edward F. London 20

Slated for 1952 completion, Grapevine Dam and reservoir, 20 miles northwest of Dallas, nears closure under a $1.8 million contract let to T. L. James Inc. and Guilliams Bros.

News from the Field 26

Traffic Sets New Record on Pennsylvania Turnpike 26
Construction Head Predicts Better Material Supply 26
N. Y. State to Seek Federal Aid for Shelters 26
Center of Town is Locale for New English Airport 26
HH Engineer Wins $100 for Money Saving System 26
Hopper Dredge Assigned to Galveston District 27
Build New Jersey Bridge in "Record" Time 30
Build Airport in "Sky" in West Virginia 32
Natural Rubber Grows Again in Western Hemisphere 32
Urge "Good Housekeeping" With New Safety Film 33
Test Dam Sites on Idaho's Snake River 33
Special Projects Engineer Named by Asphalt Institute 36
New Price Regulation Hits Used Machinery 36
New Orleans Dredgers Sign Venezuelan Contract 37
Better Highway Campaign Rolls Ahead 40

Obituary:
Raymond H. Clark 40

Equipment You Ought to Know About 44

Not in the Contract 49

New Trade Literature 53

Notes from the Manufacturers 54

COPYRIGHT 1952 BY THE EXCAVATING ENGINEER PUBLISHING COMPANY

Regular Subscription (payable in advance): 35 cents per copy, $3.50 a year; Canada and foreign, subject to publication policy, $5.00 per year. Special subscription: Upon written request on company letterhead this publication will be sent free of charge to companies, executives and supervisors engaged actively in excavating. Occupation of subscriber must be given for all subscriptions, paid or special. Right is reserved to refuse foreign subscription. Indexed by Engineering Index, Inc. Volumes available on microfilm.

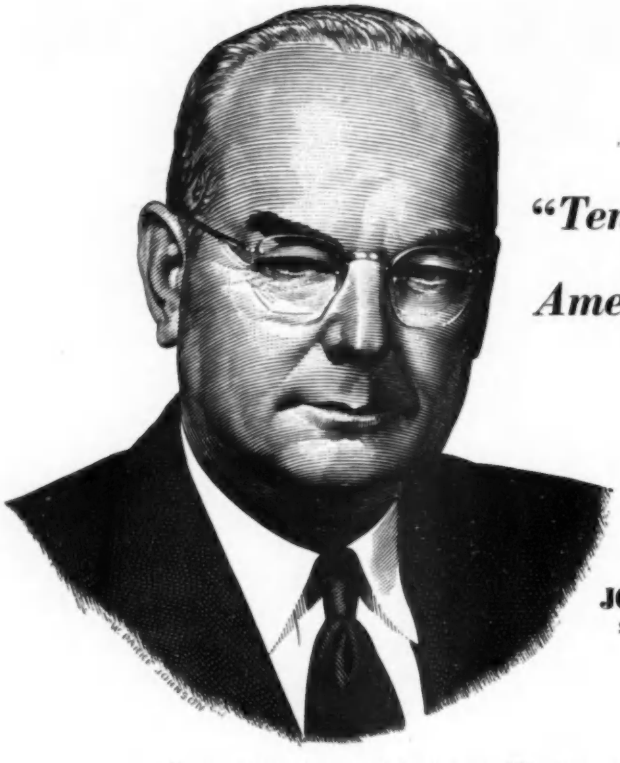
Published Monthly by

THE EXCAVATING ENGINEER PUBLISHING COMPANY

South Milwaukee, Wisconsin, U.S.A.

E. M. HEUSTON, Publisher
W. C. VAN DYKE, Editor
M. B. JAEGER, Managing Editor
H. A. BURKHARDT, Sales Manager
E. W. ARNDT, Art Editor
G. W. GRAF, Assistant Editor

CCA Member Controlled Circulation Audit



"Ten years ago America's Business publications . . ."

JOHN W. SNYDER
Secretary of the Treasury

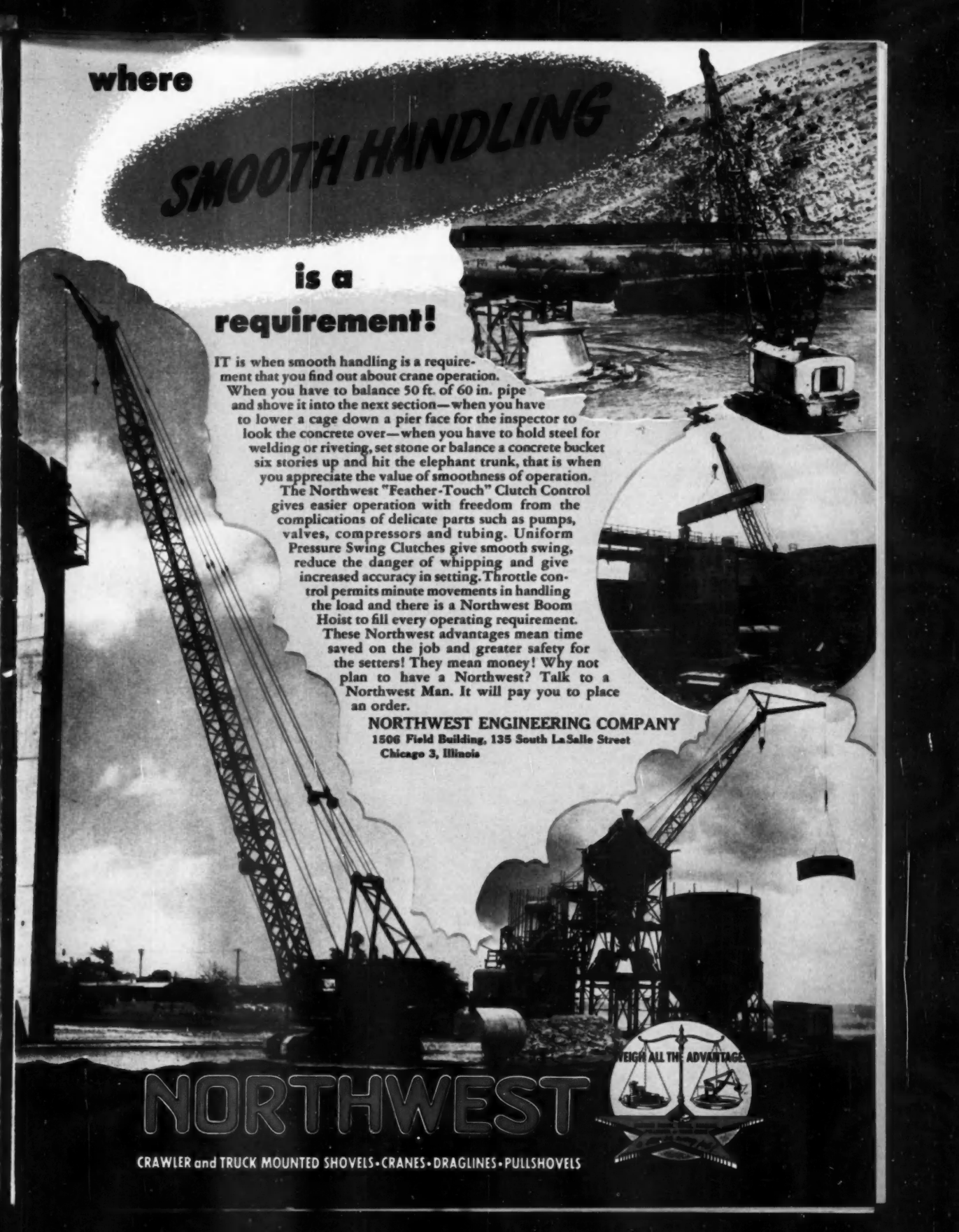
"Ten years ago America's business publications, as a voluntary public service, presented for the first time advertisements outlining the Payroll Savings Plan for the regular purchase of U. S. Savings Bonds, and urged its acceptance. During the decade which has passed, American business has consistently supported the Payroll Savings Plan and made it a success. Continuation of this cooperation with the Treasury is most essential in the present emergency. Expanded sales of Defense Bonds will assist importantly in checking inflation, in preserving economic stability, and in furthering the over-all defense effort."

In ten brief years:

- From 700,000 in 1941 employee participation went to 27,000,000 at the peak of the war.
- Companies with Payroll Savings Plans jumped from 10,000 in 1941 to more than 175,000 during the war.
- Since January 1, 1951, the number of men and women on Payroll Savings has grown from 5,000,000 to 6,200,000.
- On September 30, 1951, individuals held Series E Bonds totaling $34.6 Billion—more than $4.6 Billion greater than on V-J Day.
- In the January-September, 1951, period, 33,418,000 $25 E Bonds were purchased—a gain of 17% over the same period of 1950. 8,966,000 $50 E Bonds were sold in the first nine months of 1951. *$25 and $50 denominations are the bonds bought by Payroll Savers.*

Congratulations to the executives of industry and the publishers of business papers for their continuing effort in promoting systematic savings through the Payroll Savings Plan—the plan that protects America and Americans.

The U. S. Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and


where
SMOOTH HANDLING
is a
requirement!
IT is when smooth handling is a requirement that you find out about crane operation. When you have to balance 50 ft. of 60 in. pipe and shove it into the next section—when you have to lower a cage down a pier face for the inspector to look the concrete over—when you have to hold steel for welding or riveting, set stone or balance a concrete bucket six stories up and hit the elephant trunk, that is when you appreciate the value of smoothness of operation.
The Northwest "Feather-Touch" Clutch Control gives easier operation with freedom from the complications of delicate parts such as pumps, valves, compressors and tubing. Uniform Pressure Swing Clutches give smooth swing, reduce the danger of whipping and give increased accuracy in setting. Throttle control permits minute movements in handling the load and there is a Northwest Boom Hoist to fill every operating requirement.
These Northwest advantages mean time saved on the job and greater safety for the setters! They mean money! Why not plan to have a Northwest? Talk to a Northwest Man. It will pay you to place an order.
NORTHWEST ENGINEERING COMPANY
1506 Field Building, 135 South LaSalle Street
Chicago 3, Illinois
WEIGH ALL THE ADVANTAGES
NORTHWEST
CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

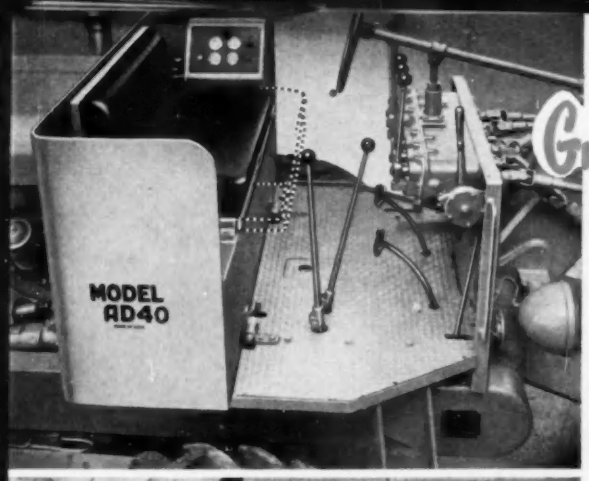
NOW! a Great New HEAVY-DUTY GRADER

Allis-Chalmers AD-40

Weight—23,000 lb.
(24,800 lb. with optional calcium chloride in tires)

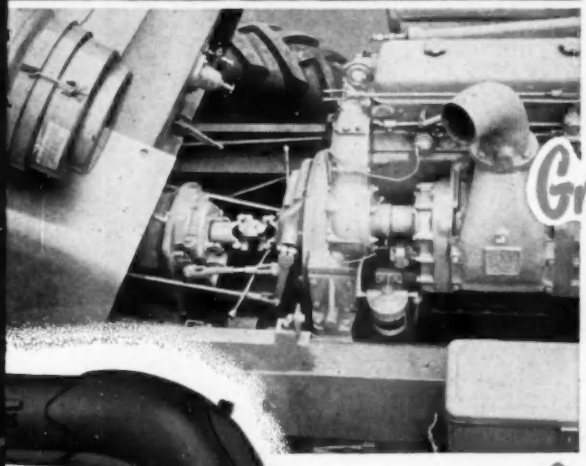
104 Brake hp.

Built to handle All Jobs —FASTER, EASIER



Great New operating ease

No other grader has been designed with the operator more in mind. **Unmatched Visibility**—Single tubular frame from front to platform, new lift cases, low control box and tapered platform give operator a full view of what he is doing. **Feather-Touch Steering**—New hydraulic booster system, fully enclosed in the frame, provides effortless steering with positive control even under toughest conditions. **All-Around Comfort**—Roomy platform, adjustable seat (as shown) and simple controls offer any size operator true comfort—sitting or standing.



Great New service simplicity

Here's maintenance and repair accessibility second to none. Combined fuel tank and seat unit tilts forward for easy access to clutch, transmission and drive shaft. Transmission can be removed without disturbing floor plates. Power take-off and hydraulic pump are mounted outside the dash.

Great New performance

Add these outstanding operator and service advantages to the exclusive Allis-Chalmers features that include ROLL-AWAY* Moldboard—extra high clearances from front to rear—shock-absorbing tubular frame—dependable General Motors 2-Cycle diesel power . . . and you have the finest heavy-duty grader on the market. Get the full story on this new AD-40 from your Allis-Chalmers dealer now.

ROLL-AWAY is an Allis-Chalmers Trade-mark.

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

• Designed for Your Job • Built to Take It • Easy to Operate • Easy to Service

Another Example of Efficient Power at Lower Cost

This new Cooper-Bessemer-powered 200-W Bucyrus-Erie walking dragline, owned by Miami Crushed Stone Co., Miami, Fla., is shown digging unshot limerock from a 24-foot pit at the rate of 300 yards per hour. The engine is a dependable Cooper-Bessemer Type GS rated 385 bhp.

COOPER-BESSEMER DIESELS . . .

. . . noted for "digging in" — without complaint!

FOR example . . . President G. D. Monroe of the Miami Crushed Stone Company has this to say . . .

"This machine is digging an oolitic formation, and it is doing a good job without the rock having to be drilled and shot. We are very much delighted with the performance of your engine, and the whole machine for that matter."

If you have a power job coming up—mobile or stationary—Cooper-Bessemers can help you keep costs down, production up! They're designed and built that way. So get all the facts on these modern engines before going ahead with that next powering job of yours.

The **Cooper-Bessemer** *Corporation*

MOUNT VERNON, OHIO — GROVE CITY, PENNA.

New York Washington, D. C. Bradford, Pa. San Francisco Houston, Dallas, Greggton, Pampa and Odessa, Texas Seattle Tulsa Shreveport St. Louis Los Angeles Chicago Caracas, Venezuela Cooper-Bessemer of Canada, Ltd., Halifax, Nova Scotia Gloucester, Mass. Calmes Engineering Co., New Orleans, La.

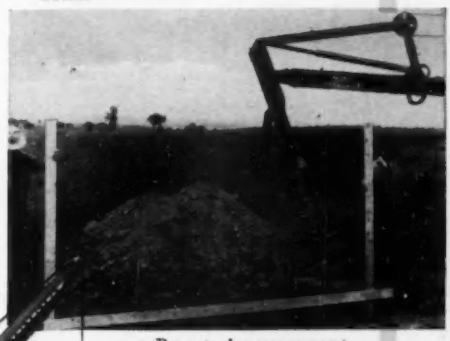
HYDROHOE Cuts Trenching Move-Up Time by 40%

With the smooth extend-retract action of its telescoping boom, the fully hydraulic Bucyrus-Erie Hydrohoe cuts move-up time on trenching as much as 40 percent. Operator begins cut with boom extended to full "out" position. As he trenches he retracts boom, digging right up to the back of truck. This dragshovel earns extra dollars digging, while conventional units are moving up.

After digging a length of trench, operator can peel off the last few inches at grade level — smooth out the scallops, by merely telescoping boom. In addition, ability to retract boom makes the Hydrohoe extra compact for work in close quarters.

These are only a few of the many Hydrohoe advantages. For complete details write us or see your Bucyrus-Erie Hydrocrane distributor. He will be happy to arrange a demonstration. 132H51C

• The new Bucyrus-Erie Hydrohoe gives you not one, but two digging actions: 1. Conventional dragshovel digging arc. 2. A separate horizontal action by means of telescoping the boom.



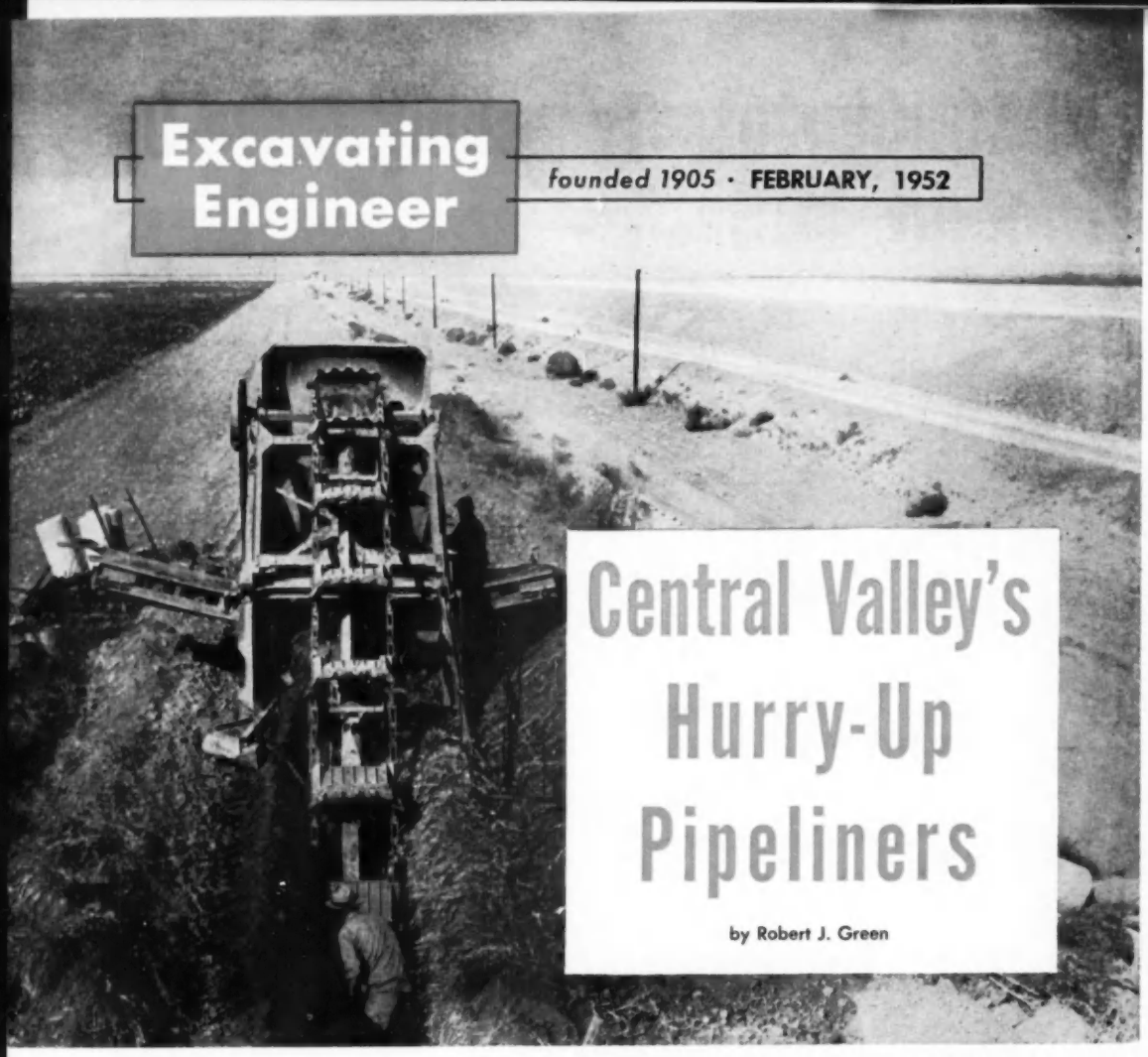
• By actual measurement this Hydrohoe, digging at an approximate depth of 4 ft., cuts an 11-ft. long trench — without a single move-up.

BUCYRUS ERIE HYDROCRANE

• From Hydrohoe to Hydrocrane—right in the field — only three hours. This quick convertibility increases the on-the-spot value of the Hydrocrane's many attachments—hydraulically operated clamshell bucket, ½-yd. materials handling bucket, 1-yd. snow and trash bucket, catch basin bucket, grapple, magnet and cranehook.

BUCYRUS-ERIE HYDROCRANE DIVISION
South Milwaukee, Wisconsin

Excavating Engineer
founded 1905 · FEBRUARY, 1952



Central Valley's Hurry-Up Pipeliners

by Robert J. Green

• Economic change is pointed up in this picture of California's Central Valley. While a Parsons Trenchliner opens ditch for irrigation pipe, power line at right carries electricity generated at Friant dam. New agricultural land ready for production is shown at far right.

GRINDING south in a cloud of dust, United Concrete Pipe Corp. of Baldwin Park, Calif., has accomplished an amazing construction feat in California's Central Valley. In a year's time, the company has installed 120 miles of pipeline to distribute irrigation water to thirsty farmlands. When Friant-Kern canal was finished a year ago, engineers and farmers thought it might be a long time before the distribution system was in. They were wrong. Thanks to fireball performance on the part of UCP and other contractors, the vital distributive link is shaping up right out to the cotton rows.

In the past year United Concrete Pipe has worked three schedules, covering about 100 square miles of farmland and 120 miles of pipeline, at a contract cost of approximately $1.6 million. Southern San Joaquin Municipal Utility District, a cooperative group of farmers in the valley, has custody over the work within the framework of its agreements with the U. S. Bureau of Reclamation. The USBR is engineering and supervising the project, which, when its construction cost is paid back to the government by the farmers, will then presumably pass back to the utility district for ownership, operation and maintenance.

The work is situated above Bakersfield about 40 miles, near the towns of Delano and McFarland. Ever since the main canal construction was finished late last fall, the Bureau of Reclamation has hurried its contractors and used every persuasive effort to encourage the farmers to get the final link completed. Of the many contracts, the work by United Concrete Pipe Corp. exemplifies modern pipelining perhaps as well as any, because UCP is a specialist firm in that type of work.

Manufacturing Plant Built

When the prospect of such extensive concrete pipe construction appeared several years ago, United's officials decided to invest money in a modern pipe manufacturing layout, capable of turning out the pipe sections at high speed. Facilities had

• General superintendent Vlado Merchap (left) and his assistant W. G. Grubacich discuss their latest problem.

to be built for turning out pipe from 8 to 104 inches in diameter. A survey showed that the demand for pipe would be so great when the program really got started that the concrete plant alone would have to be big enough to handle between 200 and 300 cubic yards of concrete a shift.

Careful planning went into the selection of a plant site, because it had to be a permanent setup centrally located for the various jobs as they came up. The plant was finally set up on U. S. Highway 99, about five miles south of Tulare, a town between Bakersfield and Fresno. This plant turned out all the pipe for their recent work by the company, which moved south so steadily that by November, 1951 the pipeline crews were 40 miles south of the plant.

The plant is set up along the same lines as UCP's headquarters plant at Baldwin Park. It covers a 64-acre tract of land. In the setup are allocations for pipe storage, pipe curing, concrete pouring, erection of forms, manufacture of reinforcing steel cages, batch plant work, and appurtenant equipment — boilers, for example — which is necessary to the manufacture of pipe.

Reinforcing steel comes by rail from steel mills, and is fabricated into round cages by a huge spinning machine. It spins the main spiral, from reinforcing steel stock, in a matter of a few minutes. Lateral reinforcement is tacked on by welders, and there is monorail crane equipment to handle the steel cages until they are complete. A small truck mounted winch crane moves the cages out to the two Ohio railroad cranes at the placing site.

A specialist in its field, United Concrete Pipe Corp. efficiently lays 120 miles of water distribution pipeline in California's Central Valley. The $1.6 million contract for the Bureau of Reclamation taps Friant-Kern canal.

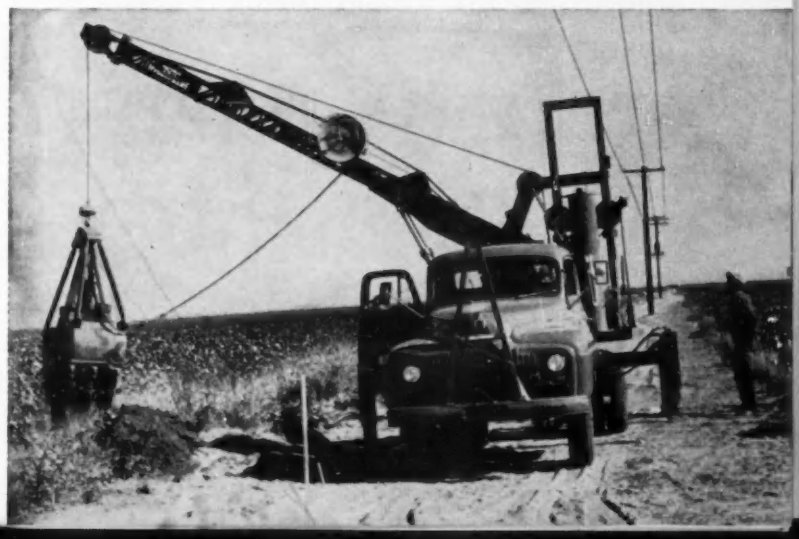
The assembly of materials to make a pipe section follows a mechanized routine down a 500-ft. track. The base of this form terminates in a patented platform which forms the bell end of the joint. A steel reinforcing cage is next placed in position over the inner wall, and the outer steel form is lowered into position and clamped in place.

Form Pipe Sections

Concrete from the batch plant then is placed in thin lifts not over 12 inches high at a time, and heavy Viber external-type vibrators consolidate the concrete around the steel. The forms are removed after 12 hours of curing, and a wooden box-type framework is lowered around each section. Live steam from two 120-hp Oilwell boilers is then admitted inside the boxes, and each concrete pipe section gets a 24-hour cure under live steam heat. This develops the maximum concrete strength in a short time.

The sections are then picked up and rolled down timber storage skids, for a secondary curing period. Later, they are picked up and loaded to a fleet of 8 Sterling, Ford and International delivery trucks and trailers, which haul them to the placing site.

Small-diameter pipe in the 12-21 inch diameter class is manufactured in another part of the yard. Unlike the larger pipe, which has a rubber joint at the bell end, these small-diameter sections have simple slip joints which can be closed up in the field with mortar. They are manufactured



• High tension wires above this Bucyrus-Erie H-3 Hydrocrane could have meant trouble for large machine. However, the H-3 performed without a hitch as it installed parts of water distribution system.

• Merrill Bird, youthful general superintendent of the Tulare pipe manufacturing spread, looks over his stock of irrigation pipe.

by vibrating a dry-packed concrete mixture in steel forms, and are cured by water spray.

All sand and aggregates are being produced by UCP from a stream bed deposit 27 miles from the plant. Trucks haul the various materials from the crushing and screening plant to the batching site, where a groundlevel hopper and elevating bucket line transfers it to the batch plant bins for weighing.

Big Excavation Quantities

Pipelines generally are not regarded as major excavation jobs, but almost 3 million cubic yards of earth had to be dug and backfilled to complete the 120-mile assignment. Almost all was in beautiful soil, with scarcely a rock anywhere, except for a few spots of hardpan. It was the type of excavation job where the selection and scheduling of equipment was important, so that good progress would result.

The large diameter pipe required trenches up to 108 inches wide and 14 feet deep. An Austin trench excavator handled the digging on all trenches over 36 inches wide. Below that width, two Parsons Trenchliners did the digging. One of these machines was a Model 250; the other a 350. Trench lines were established by surveyors, and the trenching machines followed a string line as they worked down the country. H&L detachable teeth were used on the digging buckets, and these were so arranged that a natural cradle, rather than a flat trench bottom, resulted. One man with a shovel worked with each machine to make fine grade. Grade was checked every few feet with a simple wooden template. It consisted of a main leg, with a hinged arm fitted at the proper ditch depth. A small built-in level on the arm portion gave direct readings when it was referred to the string line.

Six hundred feet per 8-hour shift was common progress with the Austin machine when it worked in trenches of average size, and the Parsons Trenchliners often hit 1,600 to 1,700 feet in the same period. An analysis of excavation yardage showed that these rigs often dug 250 yards of soil an hour as they moved down the line.

This type of excavation had to be supplemented by another brand which was also important. Thousands of yards of digging were included in the excavation of sites for valves, gate houses, lateral turnouts, stand pipes and numerous other small structures incidental to a modern irrigation system.

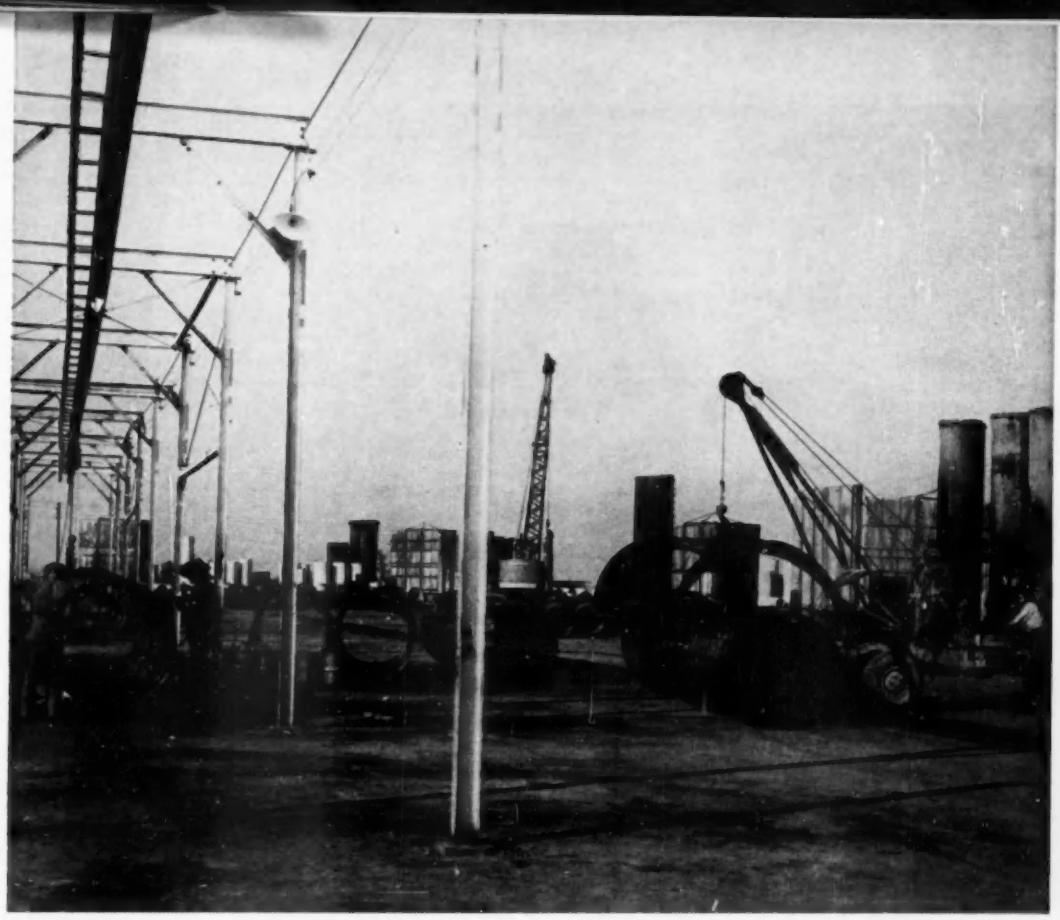
United Concrete Pipe selected for this work a Bucyrus-Erie H-3 Hydrocrane, mounted on an International L-180 truck, and equipped with a ⅜-yd. clamshell bucket. The rig was used for all such structure excavation, and also the placing of important parts of the system. Fourteen-foot sections of 27-in. concrete pipe weigh almost 1½ tons, but the Hydrocrane was able to handle them with a 45° boom angle. Several 2,850-pound check structures were also placed with this machine.

Pipe Placing and Backfill

A variety of cranes had to be assigned to handle the various sizes of pipe. For example, sections with a diameter greater than 42 inches were heavy enough to use a Manitowoc 25-ton machine. Often the sections were unloaded direct from the delivery trucks to the trench. At other times there was a short period of storage before the installation was made.

From 42 to 24-in. diameter pipe sections were handled by a Northwest 10-ton crane. Below 24 inches, the small sections were hoisted by two Hanson machines and a Hendy Crane. Cable slings were used for the big

• Looking out across the Tulare pipe yard, we see acres of concrete pipe stored for delivery to job.

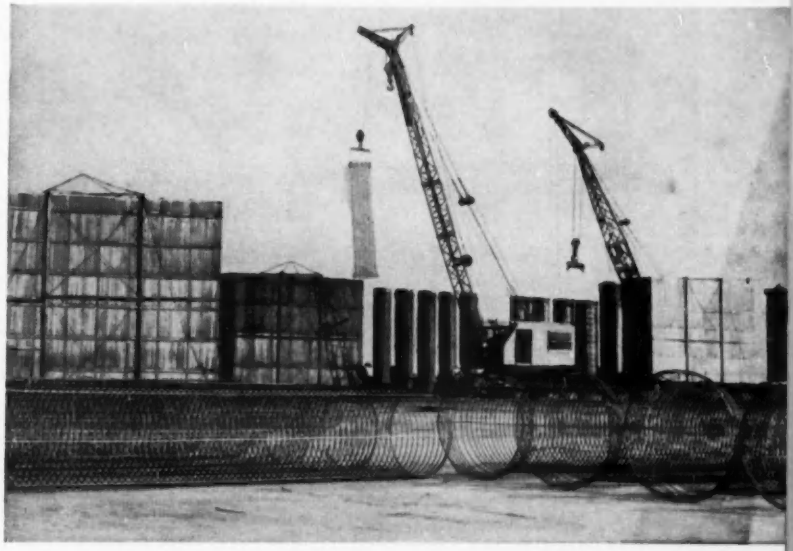


diameters, but the Hanson and Hendy machines used a steel clamp which fitted the pipe and permitted rapid placing.

The bell and spigot joints of large diameter pipe were installed with a rubber gasket between the male and female ends, to make a watertight connection. Later, the small inside and outside crack between sections was filled with cement mortar to make the concrete continuous. In the case of small diameter pipe, the slip joints were simply fitted together, and the joints poured with cement mortar to make them watertight. Small diameter lines carry only a gravity load with little hydrostatic head. In all cases, however, including pipelines of all sizes, the fine grading for the pipe bedding was true and smooth. In addition, sand cradles were used for some of the large sections.

Since the pipelines pass largely through agricultural terrain, most of the earth backfill was uncompacted. The larger diameters were filled to the springline with sand, to insure a firm

● Above: Welders fabricate steel reinforcing cages in the Tulare steel yard as special truck mounted crane carries a cage away to railway cranes. Below: Two railway cranes set steel reinforcement and pipe shells in preparation for pour in Tulare yard of United Concrete Pipe Corp.



• Two Parsons Trenchliners leap frog on ditch excavation which will hold row of waiting irrigation pipe. Below: A Hansen crane was one of three small rigs handling pipe of small diameter. Larger diameters required crawler cranes up to 25-ton capacity.

bedding, and after that the excavated dirt was shoved back in by two Caterpillar D7's and a D4, all equipped with angledozer blades. A Caterpillar No. 12 motor grader helped to finish out the topping and leave a neat job. It also took care of grading on the various haul roads.

One aspect of backfill was particularly interesting, especially where the pipelines crossed county and state highways in the valley. At these locations, it was necessary to replace the backfill in a foolproof manner so the highway surface would not break or settle at these points under the action of traffic.

To handle that problem, the trenches in roadway areas were backfilled to the top with clean, fine sand. The sand was put in by dump trucks in lifts not greater than six feet. Water trucks, hauling from a standpipe and Rex pump at the Friant-Kern Canal, brought in the water which was used for flooding. As the flooded sand went in, an ordinary Viber concrete vibrator helped to shake the sand down to its best density. By bringing up the earth backfill on both sides of the roadway at the same time, little sand was lost. The completed job left a firm base to hold the roadway paving and traffic.

Good organization and equipment has paid off in real progress, and when Excavating Engineer's representative was on the project in mid-November, the end of schedule 3 was in sight. Throughout the valley, 1951 has been a year of progress, and a large part of the water system which will distribute life-giving moisture from the main canals to dry acres has now been installed.

United Concrete Pipe Corp. operations, all under direction of B. J. Ukropina, president of the company, were handled at field level by Vlado Merchap, general superintendent and his assistant, W. G. Grubacich.

The lateral pipeline system is but a very small part of one of the biggest, most ambitious water and land development programs ever conceived by man. Efforts at developing a comprehensive plan for the best use of water and land resources in California's great Central Valley date back to 1873, when the Army Corps of Engineers prepared a report on irrigation in the San Joaquin, Tulare, and Sacramento Valleys. Since then, many reports have been prepared, all detailing and enlarging on the plan.

Basically, the Central Valley plan takes excess water from the northern part of the Sacramento Valley, and places it in the southern part of San Joaquin Valley, where an insufficient water supply has existed for many years. While the primary purpose of the project has always been to distribute water resources and irrigate farmland, the project also has other benefits. Electric power is being generated in the process, salt water is being repelled from the Delta lands at the mouth of the Sacramento River around San Francisco Bay, fresh water is being supplied for municipal and industrial purposes, and certain improvements have been made in navigation and flood control.

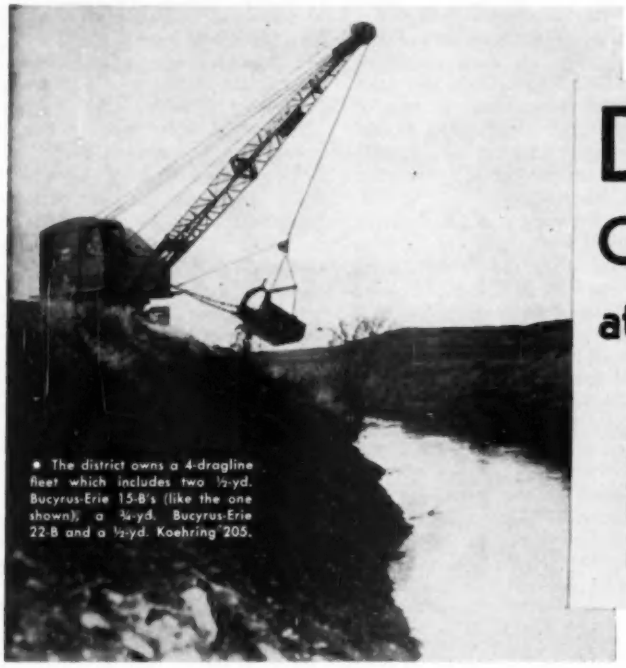
The key structure of the project is Shasta Dam on the Sacramento River near Redding, 450 miles north of the present pipelining activity. Shasta Reservoir stores the winter floodwaters of the Sacramento Valley and uses them in the irrigation system that extends to Bakersfield. Keswick Dam, located nine miles downstream from Shasta, provides afterbay regulation of water released from the Shasta power plant and spillway.

San Joaquin River waters are stored in Millerton Lake behind Friant Dam, which also acts as a diversion dam. Water from Friant Dam is distributed by a gravity system through two main canals, the Friant-Kern and the Madera. Friant-Kern Canal extends 150 miles along the valley's east rim to the Kern River near Bakersfield. The Madera Canal passes 37 miles in a northwesterly direction to Ash Slough, near the Merced County line.

Sacramento River water is carried through the Delta Cross Channel into the lower San Joaquin River near Tracy. Huge pumps, driven by electric motors of 22,500 hp each, then lift the water 197 feet into the Delta-Mendota Canal, which flows along the west side of the San Joaquin Valley to Mendota Pool, about 40 miles downstream from Friant Dam. The Contra Costa Canal, originating at Rock Slough near Oakley, intercepts natural flow in the Sacramento-San Joaquin delta, lifts it 127 feet by a series of four pumping stations, and distributes it westward 48 miles to the vicinity of Martinez.

Ambitious though the Central Valley project was when it was first conceived, it may be dwarfed one day in the future by a still greater program of bringing excess Columbia River water from Portland, Ore. to southern California. Plans for this great undertaking are in the making. But in the meantime, contractors like United Concrete Pipe Corp. and irrigation districts like Southern San Joaquin Municipal Utility District are rapidly putting the finishing touches on the present distribution system.

● Miscellaneous structure excavation is being carried on by local irrigation district's Bucyrus-Erie 22-B dragline a few miles from United Concrete Pipe Corp. job.



• The district owns a 4-dragline fleet which includes two ½-yd. Bucyrus-Erie 15-B's (like the one shown); a ¾-yd. Bucyrus-Erie 22-B and a ½-yd. Koehring 205.

Draglines Cut Canal Costs at Warm Springs

by Ray Day

Canal upkeep costs are exceptionally low for farmers in this Oregon irrigation district. Here's how an alert superintendent and an expert crew keep draglines busy, canals filled and assessments down.

IN THE Boise office of the U. S. Bureau of Reclamation, an economic expert on canal operation and maintenance sat with a puzzled frown on his face studying the latest report of Warm Springs Irrigation District at Vale, Ore. The maintenance figures were plain — a $2 per acre assessment per year for the 50,000-acre district. Practically every other district was paying between $4 and $4.50.

"I wonder what Walter White's maintenance formula is," mused the government man. "Maybe the Bureau could use it."

The chances of a government agency ever copying the maintenance secrets of Walter C. White, Superintendent of Canals of Warm Springs Irrigation District, are slim indeed. For what White has done is to take care of canal maintenance first, and then to rent his equipment for other work on the side to bring in additional revenue for the district. Land leveling, construction of silage storage excavations, and even County and State work falls occasionally to machines owned by the enterprising irrigation district. Recently a large truckload of lumber passed through Vale, loaded with exactly the kind of timber White needed for a betterment project. When the driver stopped for lunch, White found that the lumber was for sale cheap. He bought the whole works before the driver finished lunch. That's how he cuts red tape.

District Big and Prosperous

Warm Springs Irrigation District is a big, thriving private enterprise outfit of cooperative farmers in the rich Malheur Valley of eastern Oregon. The name is somewhat of a misnomer, for actually Warm Springs Irrigation District includes only 18,000 acres of farmland. The other 32,000 acres belong properly to Vale Irrigation District, which was formed in the 1930's shortly after the U. S. Bureau of Reclamation added to earlier irrigation works. White is also superintendent of canals for the Vale project, which is still repaying construction costs to the federal treasury.

Some of the water rights in the district date back to 1864. The first active consolidation of irrigation took place in 1916, when five farmers with irrigation diversions pooled their resources and formed Warm Springs Irrigation District. Warm Springs Reservoir, with 190,000 acre feet of storage capacity, was built on the Malheur River 90 miles upriver from Vale.

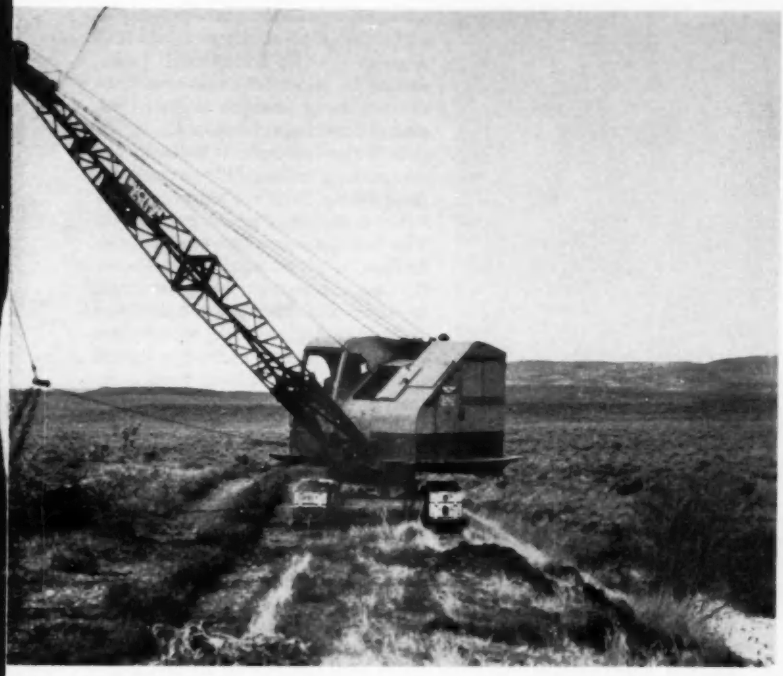
In 1930 the USBR moved in and built a 60,000 acre foot reservoir on another fork of the Malheur, and constructed some additional canals. Maintenance of these works was a bureau function until January 1, 1949, when the district took it over.

From the initial 5-farmer beginning, the district has now grown to include some 525 farmers. There are 550 miles of main canals and laterals. Some of the mains are 20 feet wide on the bottom and carry as much as 600 cfs of irrigation water. Laterals carry from 3 to 20 cfs. The canals are all long, and the first diversion is 30 miles upriver from the irrigable lands.

Draglines Do It All

The district has standardized exclusively on draglines for canal maintenance, and what is more, has made it a year round operation. Canal maintenance doesn't wait until the ditches are dry. Much is done in the summer, when vital water is flowing toward the rich lava-soil acres which produce hay, grain, sugar beets, potatoes, beans and asparagus. Even in winter when the ground is frozen a foot deep and canal maintenance cannot be carried on, machines are often seen digging drainage ditches below the frost line.

The biggest rig of the 4-dragline fleet is a Bucyrus-Erie 22-B, which carries a ¾-yd. Esco bucket on a 45-ft. boom. This machine is used almost exclusively for drainage ditch work, and trimming on the larger canals.



• Warm Springs Irrigation District is using draglines exclusively for canal maintenance. Here a Bucyrus-Erie 15-B dresses the slope of a main delivery canal near Vale, Ore. Mucked material strengthens the levee backslope.

There is a Koehring 205, with a 30-ft. boom and a ½-yd. Page bucket, for work on smaller canals. Two Bucyrus-Erie 15-B machines with ½-yd. Esco buckets and 34-ft. booms also do work on the smaller canals and laterals.

Rounding out this dragline fleet are two small tractors, a Caterpillar D4 and an Allis-Chalmers HD-5, and a Caterpillar No. 40 scraper. The power control unit for the scraper is interchangeable between the two tractors. In addition, both tractors have angle-dozer blades for odd jobs which have to be done virtually every day.

The frequency of canal maintenance varies from one to three years, depending on the size of canal, vegetation, and silt in the water. The canals all have a tendency to choke in a foot or so on the bottom and slopes as silt settles out of the irrigation water. Trees, willows, and other brush get started, and help to constrict the stream. Moss is a constant headache in summer when the sun is bright and the weather is warm.

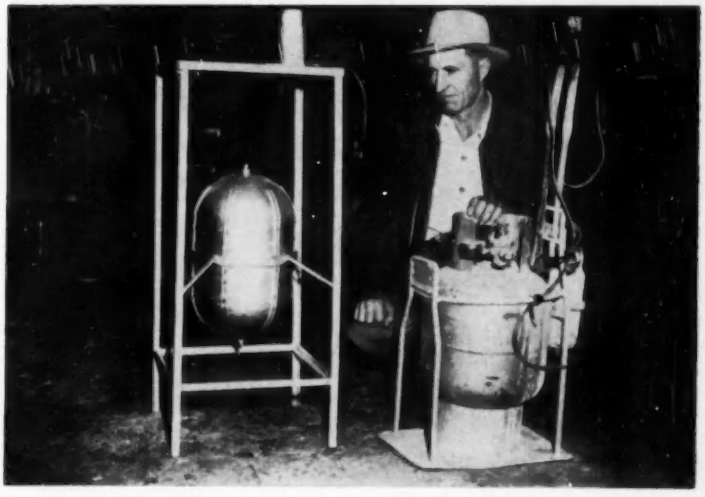
Since the canals were engineered to deliver necessary water for 50,000 acres but not much more, it is vital for the maintenance operation to keep this carrying capacity up to new-canal standards. The entire maintenance program, the training of operators, and care of equipment is built around this basic intention.

Some of White's dragline operators have been employed by the district 10 years or more, and all have been selected for skill, judgment, carefulness, and dependability. According to White, a dirt-hungry gunner from a construction-job spread makes about the poorest canal maintenance man you could find. A good canal man might work a week and not move more than a few hundred yards of muck a day, especially if there were trees to get out of the banks, an eroded place to repair, some rip rap to replace, or a troublesome gopher hole to dig out of a leaky levee. White's operators are trained to clean a canal as they go, including all necessary repairs to small structures or the earthwork part of the system.

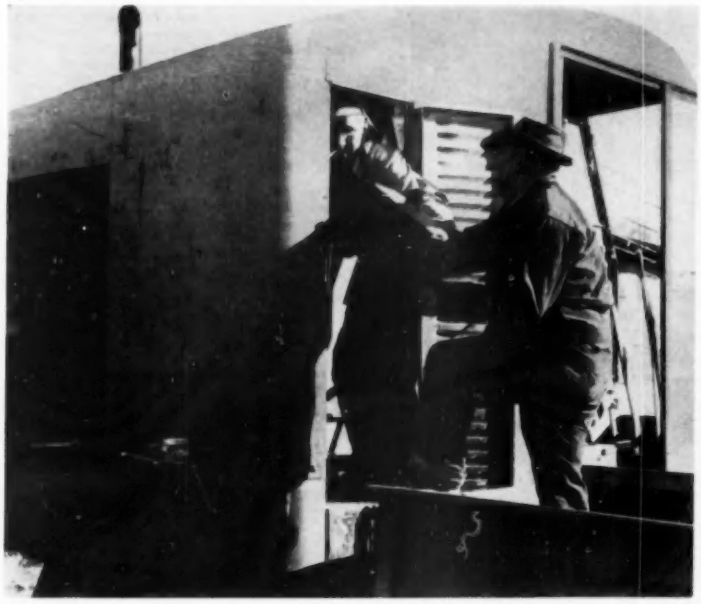
Good access roads are maintained on the top of all canal berms so the crawler-mounted draglines can get in. Excess dirt and debris cleaned from the canal is dumped usually along the backslope of the berm, where it settles in time and helps to bolster the bank.

Each operator has a pickup truck, and when he goes out to his machine in the morning he carries fuel and grease. The manufacturer's recommendations are followed strictly, and lubrication is never a hit-and-miss job. One of the 15-B's is brand new, but the other has worked steadily for 3 years without losing a single hour for repair down time. That's how good and careful the operators are about their preventive maintenance.

By picking dependable operators, White has done away with any necessity for foremen, thus reducing his overhead cost to a minimum. He has



• Walter C. White, Superintendent of Irrigation of the Warm Springs Irrigation District, compares the old model of silver iodide smoke generator at right with a lighter, better model his shop is making up at the left. These simple instruments are increasing rainfall in the important watersheds of the district.



● Top: Normal operating repairs are made usually right out in the field. This Koehring 205 ½-yd. dragline was not down long for radiator repairs. Oiler E. R. Knott (handing radiator part to operator Clifford Rumsey) and operator soon had parts installed. Bottom: A Caterpillar D4 with dozer clears path for dragline which will install concrete siphon and carry irrigation water under Bully Creek.

one engineering assistant who is also a part-time office manager, and a stenographer. There are 14 ditch riders, each with about 3,500 acres to take care of. The organization is small, compact, efficient, and harmonious.

If major repairs are necessary on any of the machines, they are always done during the worst winter months. There is a small, warm shop located at Vale headquarters where this work can be done. No mechanics are employed. The work is done by the operator and his oiler. The district owns an Olson low-bed trailer, towed by a new Ford F-8 tractor, which can load and move a dragline in less than an hour to almost any part of the 30-mile valley.

Weed and Moss Control

Weeds on canal banks and moss in the water are two of the worst summer problems. In recent years, chemicals have been perfected to control these growths, and so far as White can tell, there has been no apparent damage to crops grown with such chemicals in the irrigation water.

For weed control 2,4,D and 2,4,5,T are both used according to manufacturer's directions. These chemicals will kill all but large brush, and will often take that if the shoots are young and tender. Ortho weed killer and Deadex are introduced in the canal water to control moss. As a result the canals clear up miraculously, often overnight. Results are not permanent, and the treatment has to be repeated after 60 to 90 days.

Everybody's Machines!

Possibly no part of the district's operations reflect the spirit of the valley as much as the feeling, on the part of practically everybody, that the machines are available for any type of job.

It is not at all unusual for a dragline operator, with his machine in transit on the lowboy, to be stopped by some resident who needs a basement dug, or a few loads of gravel loaded, or some other small odd job done. White has been more than tolerant of these requests, because he realizes wherever he can do such a job that the machine is performing a useful service, that it is serving the designed interests of the district, and is helping to reduce maintenance assessments. The only criterion is whether or not canal maintenance is behind—if it is, private jobs have to wait. If not, the machines are made available to the farmers for

a nominal charge which covers rental, fuel and supplies, and the operator's time.

Farm ponds, silage pits, driveways, land leveling, terraces, drainage ditches and river bank protection have been installed. Sometimes Malheur County rents one or more of the rigs. Last summer the Oregon State Highway Commission wanted drainage ditches dug along a new highway, and the district soon had a machine on the way. When *Excavating Engineer* visited Vale in October, the 22-B was being used on a small road job by a Nyssa contractor, who rented the machine operator and all.

They Even Change the Weather

From dragline mucking to scientific weather modification may seem like a long step, but Warm Springs Irrigation District made it easily. In fact, according to White, there might be more than a casual connection between the two. Weather modification could have a lot of bearing on canal maintenance, both favorably and unfavorably.

They started fooling around with the weather several years ago, when Dr. Irving Krick of Pasadena, Calif., started getting results with cloud seeding and artificial precipitation from ground generators. R. D. Searles of the Salt River Irrigation District at Phoenix, and now assistant to the Commissioner of Reclamation in Washington, had also done much work independently. The results of his work were made available to Warm Springs. Certainly if both storage reservoirs could be filled during early winter by artificial weather modification, the water supply would be clearer and more dependable in the growing season.

Weather modification started slowly, but last winter the district spent about $5,000 for dry-ice cloud seeding by plane, and for ground generators. This year six new ground generators are expected to be put into operation to throw the tiny silver iodide particles 16,000 to 22,000 feet skyward into the fast moving storm clouds.

Only the storm clouds moving in from major Pacific storms are being seeded. These storms approach either from the northwest or southwest, sometimes at such a speed that White takes the smoke generators 40 or 50 miles toward the Pacific Ocean from the Malheur Valley. The U. S. Weather Bureau furnishes cloud data, the rate of speed the storm is moving, and any other information it can. From this information White determines how far out to go, and what proportion of silver iodide to use.

● The whole story of irrigation is in this picture of a part of the Warm Springs Irrigation District. Water for the acres in the background comes down across the valley through a steel inverted siphon. Without water, the land is a barren desert as shown in the foreground.

Propane burners are used, rather than the charcoal impregnated type. Ammonia iodide is used to dilute the silver iodide, and acetone is added to the mix. Proportions vary, according to the type of cloud formation and other meteorological factors. At the proper time the burners are lighted to send silver iodide aloft. The ground generators are kept on during the entire passage of clouds.

Results have seemed good. Last winter, a cloud formation which moved for miles across the state without dropping rain was intercepted as it approached the watershed above Malheur dams. Rain gauges showed only .18 inch on the fringe area where the silver iodide took effect, but the watershed caught a 1-inch rain.

If the watershed can be seeded artificially to produce full reservoirs of clear water, as now appears possible, White believes canal maintenance costs can be cut even more as the years go by. It should reduce the silt load appreciably.

"We're going at it carefully," he explained. "We're not seeding anything but the area over the watershed, and only that when the crops are harvested. We don't do any seeding in summer; in fact, we want our irrigation water then."

It is entirely possible that cost experts may study Warm Springs Irrigation District maintenance reports in the future, and continue to rub their eyes in amazement. For the district is using every trick of modern science, along with the old-fashioned virtues of hard work, good equipment, taking care of one's tools, and doing a good job to advance agricultural progress in an important farming section of the Pacific Northwest.

And based on comparative canal maintenance costs in the adjacent area, this enterprising group of farmers is saving a neat $100,000 to $125,000 a year in the process.

Push Grapevine Dam Closure

by Edward F. London

Slated for 1952 completion, Grapevine Dam and reservoir, 20 miles northwest of Dallas, nears closure under a $1.8 million contract let to T. L. James Inc. and Guilliams Bros.

UNDER a $1,835,178 contract, T. L. James & Co. Inc. and Guilliams Bros. of Ruston, La., are pushing men and machines 23 hours a day, seven days a week, plugging the last gap in Grapevine Dam, about 20 miles northwest of Dallas, Tex.

To fill the 658-ft. closure section will require the moving and packing of several million yards of dirt in this earth-fill dam which will stretch 12,850 feet across Denton Creek Valley at a height of 137 feet above stream bed.

Grapevine Dam is one of four reservoir projects in this area under the direct supervision of the Department of the Army, Corps of Engineers, Fort Worth District, headed by Col. Delbert B. Freeman. In conjunction with Garza-Little Elm Dam and reservoir on the Elm Fork of the Trinity River, it will control floods originating in the Elm Fork basin.

Construction was started in January, 1948, and completion is scheduled for 1952. The estimated cost of Grapevine Dam and reservoir is $11,664,000, of which about $2,174,000 will be contributed by the cities of Dallas, Highland Park, and University Park.

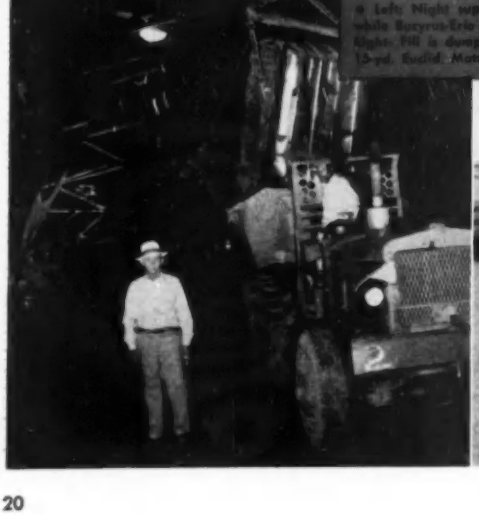
This project will provide flood protection to the flood plain below the dam and will form a water reservoir with a capacity of 434,200 acre feet. At the top of the conservation pool, at which the level of the reservoir is expected to be most of the time, the lake will have 61 miles of shoreline and cover 7,380 acres.

It is expected that the reservoir will provide excellent recreational facilities for the citizens of Dallas and the surrounding area. The Corps of Engineers and other cooperating local, state and federal agencies are expected to formulate plans for developing fishing, swimming, boating, and camping facilities along the shores of this new Texas lake.

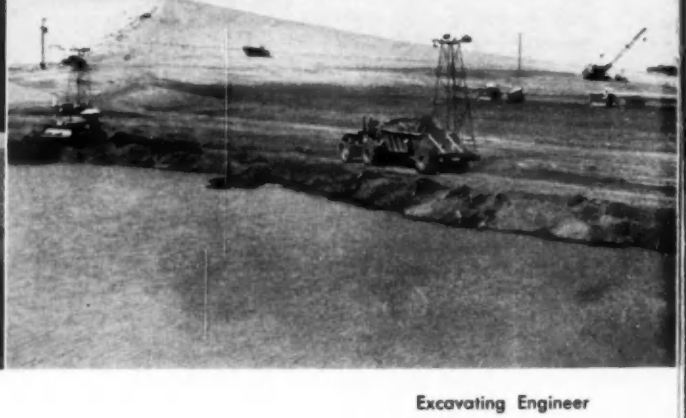
An initial contract of $866,126 for the construction of a portion of the embankment was started Jan. 14, 1948, by Mosely Construction Co. and completed Nov. 7, 1950.

The next contract, which was for initial reservoir clearing went to Bill Curphy Co., Des Moines, Ia., on a bid of $114,800. Started Apr. 10, 1950, this contract was completed Feb. 28, 1951.

Joint contractors Russ Mitchell, Inc. and Wyche & Bruce Construction Co., were awarded the contract for the concrete spillway and outlet works, and the conduit under the dam for $1,899,-



Left: Night superintendent Howard Perdieu stands by while Bucyrus-Erie 54-B dragline loads Euclid or Isaacson pit. Right: Fill is dumped at edge of water in collection by 4 15-yd. Euclid. Material is leveled by Caterpillar D-8 at left.



952. Started Jan. 18, 1949, this portion of the work was completed June 25, 1951.

Complete This Spring

The present contract awarded to joint contractors T. L. James & Co. Inc. & Guilliams Bros. for completion of the dam was begun on Apr. 1, 1950, and is scheduled for completion May 3. 1952.

This contract now underway calls for the completion of the embankment, including the closure section, asphalt road across the top of the dam, and the erection of guard rails, and barricades, and calls for the handling of the following quantities:

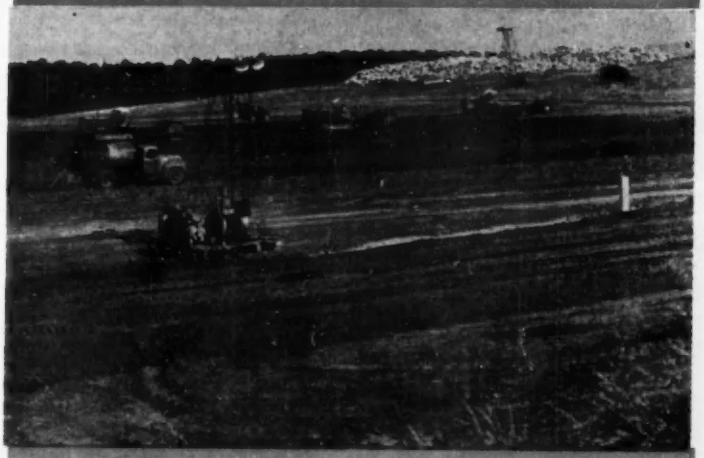
Clearing and grubbing	4 acres
Excavation, stripping	10,200 yds.
Excavation, common	144,500 yds.
Excavation, borrow	3,577,000 yds.
Fill, impervious	3,382,000 yds.
Fill, pervious	20,000 yds.
Additional compaction	3,400 roller hours
Filter blanket	60,300 yds.
Dumped riprap	123,100 yds.
Preparation of subgrade	18,750 lineal ft.
Reshaping base course	1,230 lineal ft.
Flexible base	13,300 yds.
Double asphalt surface treatment	30,900 sq. yds.
24-in. dia. cm pipe	74 lineal ft.
48-in. dia. cm pipe	74 lineal ft.
Galvanized pipe arch cover	93 lineal ft.
Guard posts	1,385
Fence steel plate guard	145 lineal ft.
Barricades	2

Although T. L. James & Co. Inc. and Guilliams Bros. moved to the job in April of 1950, very little was accomplished until July of that year because of a very wet spring. However R. B. Guilliams expects completion of the job ahead of schedule.

The first item of work was the excavation of the old bed of Denton Creek to a 40 foot depth, with a 4:1 slope. One hundred thousand yards of spoil material was excavated by four Bucyrus-Erie draglines: a 54-B with an oversize 4-yd. Hendrix bucket; a 54-B with an outsize 3½-yd. Hendrix bucket; and two 38-B's swinging outsize 3-yd. buckets which is double the rated capacity for these machines. All machines have 50-ft. booms. The 38-B's are powered by Buda Diesels while 6-71 GMC Diesels furnish power to the 54-B's.

Channel excavation extended well

• Prime clearing contractor F. M. Woodward's International TD-18 and Caterpillar D-6 dock brush for burning. Below: Caterpillar D-8's pull Green roller at closure section wetting and compacting operation. Home disc harrow at right crumbles large lumps of clay.



• Below: U. S. Corps of Engineer personnel include: (left to right) John D. Agnew, project engineer; H. L. Holder, office engineer; Lee Morrison, field engineer; S. E. Ellis, soil engineer and S. N. Levett, chief of technical data section.

● Above: Two Bucyrus-Erie draglines — a 54-B and a 38-B — load topsoil from borrow area to Euclids. In foreground is R. B. Guilliams, and brother D. I. Guilliams, contractors for closure section. Left: Bucyrus-Erie 54-B strips borrow area with 3½ yd. Hendrix bucket.

beyond the upstream and downstream toes of the embankment, in order to remove all unsuitable material in the foundation of the embankment. After the specified depth was reached, an inspection trench was excavated by the 54-B's through the length of the dam, running parallel to the axis. This inspection trench was then backfilled with impervious clay by the draglines.

The spoil from this excavation was placed by 15-yd. Euclid bottom dump trucks on the upstream side of the embankment as a false berm for added strength.

Begin Clearing

Clearing then commenced in the areas to be occupied by the embankment foundation to a point 10 feet beyond the toes of the embankment; also the areas to be occupied by two cofferdams, as well as the designated borrow areas about 1,500 yards above the upstream side of the dam.

Within these areas, all trees, brush and debris were knocked down to ground level by Caterpillar D-8's, decked and burned. The cleared areas were then grubbed of all stumps and roots over one inch in diameter to a depth of 18 inches below final foundation line of the closure section. This grubbed material was deposited in the disposal area on the downstream side of the dam by the Euclids.

Stripping of unsuitable top-soil to a depth of 6 inches was carried out by the four Bucyrus-Erie draglines loading to the Euclids which hauled to the disposal area.

After stripping was completed at the cofferdam locations, the 54-B's moved into the borrow area to excavate impervious material for the cofferdams. Hauled by the 15-yd. GMC-powered Euclids, the material was placed and then leveled by the Caterpillar D-8 pushers.

After serving its purpose, the downstream cofferdam will be leveled to the foundation line, and the materials disposed of in the nearest existing borrow area. The upstream cofferdam will be left in place.

A heavy rain about the 1st of July, 1951, caused flood water to top the upstream temporary cofferdam, but the damage was cleaned up in about ten days.

With the cofferdams erected, dirt began to fly at the rate of 15,000 yards every 23 hours, as the two 54-B and two 38-B draglines excavated the two types of material required for the closure section of the embankment. Impervious fill consisting of clays, silty clays, and sandy clays and pervious fill which is clean, free draining sand and gravel obtained from natural deposits within the borrow area were placed in 6-in. layers in designated areas on the embankment. Clay too hard to scoop is first loosened with a LeTourneau ripper in the borrow pit.

The embankment fill is being placed by Euclids, spread by Caterpillar D-8 dozers and moistened as necessary by 1,500 and 2,000 gallon tanks mounted on Ford F-8's fitted with contractor-built spray bars.

Compaction is handled by eight pairs of Grace sheepsfoot tamping rollers loaded to 650 pounds psi, making eight complete passes at the rate of 2½ mph. Although, wetting at the borrow areas was not required, Guilliams is doing some of this to cut down wetting on the embankment. A 5,000 gallon tank mounted on a Caterpillar trailer, pulled by a Caterpillar D-6 sprinkles the borrow pits when necessary.

To break up large lumps of material Guilliams is using a Rome disc harrow, pulled by a Caterpillar D-8. Usually three passes at a depth of 8 inches does this job satisfactorily.

The center of the embankment is being constructed of medium shrinkage impervious material on a 1:1 slope. Between this section and the 3:1 upstream slope is high shrinkage impervious clay. On the downstream slope which is also 3:1 is random semi-pervious and pervious material.

A 12-in. filter blanket composed of sand and gravel is being placed on the designated areas of the upstream and downstream slopes to form backing for dumped riprap. Compaction of the filter blanket is not required, but will be finished to a reasonably even surface.

Dumped riprap will be placed on the upstream slope from elevation 598.0 to the crest at elevation 588.0 and on the downstream slope from foundation line to elevation 500.0.

The riprap will be hauled under a sub-contract to local truckers from the Southwest Stone Co. quarry at Chico,

Tex., a distance of approximately 60 miles. Guilliams will haul some of this rock also, using four Ford trucks with cable dump trailers of 20 ton capacity.

R. B. Guilliams, who has supervised this job from the beginning, estimates that the above mentioned equipment with 20 or 25 local trucks will haul approximately 80 loads every 10-hour day.

Two model 12 Caterpillar road patrols maintain the haul roads from the borrow pits to the embankment and occasionally help out with spreading of material on the embankment.

A 6-in. centrifugal pump with a 40 hp General Electric motor pumps water from Denton Creek through a 6-in. line which is elevated directly over the sprinkler wagons.

Floodlight Night Work

At night the work is floodlighted by four to six strategically placed Caterpillar Diesel electric sets, Model D3400. Each of these units has eight floods at the top of 30-ft. steel towers.

With a 95 man crew which will expand to 135 when rock hauling starts, this job is rolling along smoothly under the supervision of R. B. Guilliams and D. I. Guilliams. Another brother, R. E. Guilliams, who is not a partner, has charge of all dragline equipment.

According to R. B. Guilliams, keeping the equipment rolling is the biggest headache on this job. Getting parts for some of the bulldozers has necessitated telephone calls all over the country and considerable ingenuity by the repair shop mechanics.

Humble oil and grease is being used on all equipment and is being furnished by a Dallas dealer.

In addition to the Guilliams brothers, other contractor personnel includes: Stuart Ferrand, office manager; C. L. Elmore, night shift superintendent of closure work; Howard Persinger, night shift dragline superintendent.

Reservoir Clearing

Clearing operations in the reservoir area are proceeding under a $108,870 contract to F. M. Woodward of Dallas, Tex. This work is being supervised by Travis Motley.

The clearing of 1,000 acres began May 22, 1951. The contract called for completion by Jan. 26, 1952.

Nelson Tie Co., Seguin, Tex., has a sub-contract from Woodward to clear 520 acres of heavy timber. Fourteen men under superintendent Dale Tapp are cutting the heavy timber with four 5½ hp Paulon model 44 chain saws, and two 24 hp circle saws.

Another sub-contractor, A. A. Pegram of Coleman, Tex., is clearing 400 acres, including all felling of timber and clearing of debris.

Woodward is performing the final clearing behind the Nelson Tie crew, and also the small scrub outside the heavy timber area, with an International TD-14 mounting a Bucyrus-Erie blade, an International TD-18 with Bucyrus-Erie blade, and a Caterpillar D-6 with LaPlante-Choate blade. This equipment decks the scrub and other debris into piles for burning.

The clearing contract calls for cutting the large trees to one foot above ground level. All trees, down timber, windfalls, logs, and other floatable material must be removed.

Remove All Debris

All other material is to be removed or burned so that high water will not wash it into Denton Creek, which meanders for five miles through the reservoir area.

At one point on Denton Creek a D-4 Caterpillar tractor, mounted with a Hyster unit was dragging large trees from the Creek channel. When the trees are hauled to the top of the high banks, they are burned. As this clearing job is rough on the equipment, a P & H 300 amp arc welder is kept handy to make repairs.

Other contracts in the reservoir area include an award to the Austin Bridge Co., Dallas, for the removal of Texas and Pacific Railroad tracks and bridges. Other relocation contracts underway include those to Texas Telephone Co., Tri-County Electric Cooperative, Southwestern States Telephone Co. and Tarrant County Road Commission.

All of the work performed on the Grapevine Dam project is under the direct supervision of the Department of the Army, Corps of Engineers, Fort Worth District Office. John D. Agnew is project engineer and is also in charge of the construction of Garza-Little Elm Dam, 14 miles away.

Agnew's assistants at the Grapevine project include H. L. Holder, office engineer; Lee Morrison, field engineer; S. E. Ellis, soil engineer; S. N. Lovett, chief of technical data section. Agnew supervises another group of engineers performing the same type of work at Garza-Little Elm.

● Watching a Caterpillar D-4 and Hyster unit move this tree trunk in Denton Creek is clearing superintendent Travis Motley (left). Below: An International TD-14 cleans up burning debris in reservoir site.

DOZER-SHOVEL'S

Means Dirt-Free Hydraulic Control for Extra Work Hours

The Dozer-Shovel's hydraulic system means better performance, extra work hours. Here's why:

1 With the completely closed Bucyrus-Erie hydraulic system, oil is never exposed to the air. In addition, exclusive screen strainers separate foreign particles from oil before it reaches pump. Atmospheric pressure in tanks is maintained through breather bellows-type air seals.

2 Pump, valve and tank in one unit, reduces piping to a minimum, reduces the number of fittings where leakage could occur, cuts power-wasting hose line friction.

3 Flange and "O" ring connections eliminate oil leakage. Also, all permanent connections — made by the silver soldering process — are highly resistant to vibration breakage.

This dependable, long-life hydraulic system means dependable control, even under the dustiest, dirtiest work conditions.

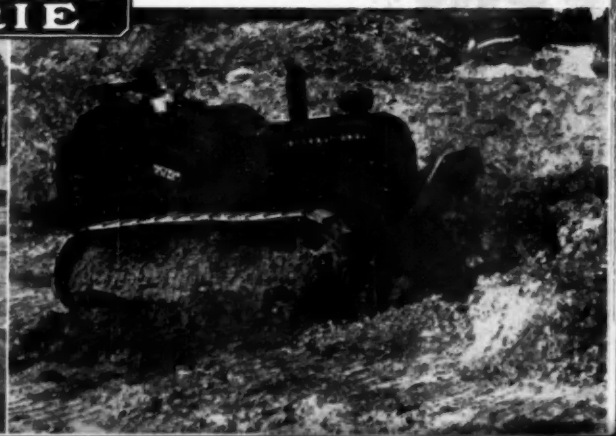
MANY EXCLUSIVE FEATURES

Superior hydraulic system is only one of many Dozer-Shovel advantages that make it much more than just another front-end loader. Your International Industrial Tractor distributor will be happy to explain such outstanding features as:

Shock-absorbing torsion box.
Sliding shoe bucket-to-cylinder linkage that reduces strain.
Box section lift arms for extra heavy lifting.
Variable-speed lift arm control for fine grading.
Superb balance — without use of dead counterweight.
Variable speed dump control.

387T51C

SOUTH MILWAUKEE **BUCYRUS ERIE** WISCONSIN



Sealed System*

See Your INTERNATIONAL
Industrial Tractor Distributor

News from the Field

Traffic Sets New Record on Pennsylvania Turnpike

In revealing that a record $14 million was collected from 7,500,000 vehicles using the Pennsylvania Turnpike during 1951, Chairman Thomas J. Evans of the State Turnpike Commission said that "these figures far surpass the commission's fondest expectations."

The toll receipts, which represented a 54.9% boost over 1950 revenue, were stimulated by the 100-mile eastern extension from Carlisle to Valley Forge. While the extension lengthened the turnpike by 63.2%, traffic during 1951 showed an increase of 66.3% over the previous year.

The 7,500,000 fare-paying vehicles using the turnpike during 1951 traveled approximately 750 million miles, Evans estimated. Non-revenue vehicles, consisting of police, maintenance, supervisory and service, covered 52,500,000 additional miles.

Peak month on the turnpike was August, when 934,000 motorists paid more than $1,500,000 in tolls—a daily average of more than $50,000. The biggest single day was the 1st of September, when $70,777.67 was collected.

The passenger car toll rate on the turnpike is slightly less than 1 cent a mile. Other fare schedules vary according to the distance traveled and the type of vehicle. This ranges from $2.20 for motorcycles to $20.50 for the heaviest trucks and trailers traveling the full length.

The turnpike now runs 327 miles from the Philadelphia suburbs to the Ohio state line. It is planned eventually to connect with the New Jersey Turnpike, the projected Ohio Turnpike, and a northeastern extension which will extend from a point east of Harrisburg to the New York state line between the Susquehanna and Delaware rivers. An extension to the Maryland state line also has been authorized.

Construction Head Predicts Better Material Supply

H. C. Turner, Jr., president of the Turner Construction Co., stated today that after conferences with top-level officials in Washington, he foresees a relaxation of controls of some critical construction materials in the latter part of '52 and early 1953.

"The present shortage of critical construction materials, particularly steel and copper, has forced curtailment of many normal peace-time operations," he said. "At the present time it appears that this situation should be eased by the latter part of the coming year, although copper products will still be difficult to obtain and some substitutions will be necessary."

With respect to projects which must be postponed until controls are relaxed, he advised that the present time could be used to good advantage for study and the actual planning of the project. Then one would be in a position to request the necessary allocations of critical materials and proceed with the project at the earliest possible date after the situation eases.

N. Y. State to Seek Federal Aid for Shelters

Although approving New York City's $15 million program for building subway bomb shelters, the state defense council postponed any action on petitioning the federal government for its 50% share of the expense.

Governor Dewey explained after the meeting that the 32-member council had decided to survey all shelter needs of target areas throughout the state before asking Congress to appropriate any funds for such projects.

The governor noted that the federal government was obligated under its civil defense law to bear half the expense of shelters in the state. He added that it would be "useless" to seek funds now because Congress would not consider any budget until next spring.

Dewey said that New York City had done "a very good job" on its $15 million shelter program, which calls for increasing the entrance and exit facilities and underground shelter space in centrally located subway stations.

Center of Town is Locale for New English Airport

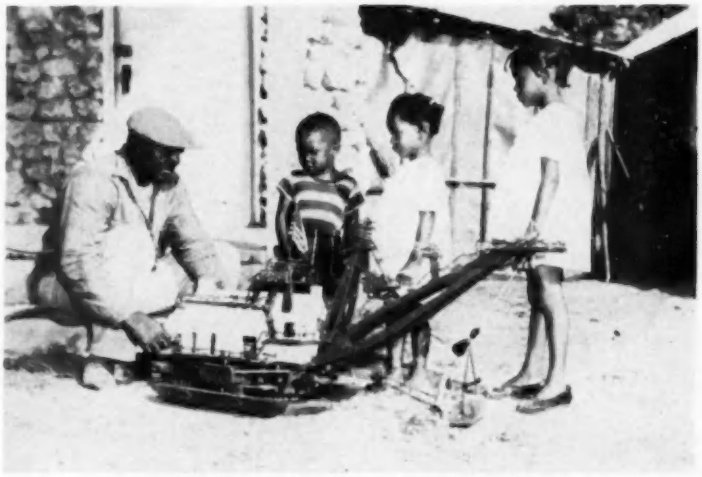
The large industrial city of Manchester, England, is planning a helicopter airport for the center of town.

It will cost $4.2 million. The plan is for a circular structure ten stories high, topped by a rectangular landing deck 300 feet long and 250 feet wide. This deck will be on a turntable, so that it can be rotated into the prevailing wind. The structure will be of aluminum alloy based on shock-absorbing bogies. The building itself will contain a large hotel, restaurant and theatre, besides several floors of offices.

HH Engineer Wins $100 for Money Saving System

A suggestion for cross-referencing complicated contract specifications is resulting in savings of several thousand dollars annually at the Hungry Horse Project. This idea has won a $100 Department of Interior incentive award for materials engineer Harrison M. Tice, at the Bureau of Reclamation dam.

The award was approved by I. Lyle Cunningham, acting regional director



• John Williams, an employee of the International Minerals & Chemical Corp., Bartow, Fla., is giving neighborhood children a lesson in dragline operation. Williams patterned this Bucyrus-Erie 1150-B model after the "Bigger Digger" owned by his company.

for the bureau, and was presented at the project by Clyde H. Spencer, construction engineer.

The reference system makes a set of specifications as easy to use as a dictionary. It eliminates delays in obtaining important contract data pertaining to the thousands of types of work and installations involved in construction of Hungry Horse Dam and power plant. It is anticipated that the system will be adopted at other Bureau of Reclamation projects.

Hopper Dredge Assigned to Galveston District

The U. S. hopper dredge *A. Mackenzie* has been assigned to the Galveston District, Corps of Engineers to assist the district in fulfilling its major civil works responsibility of dredging deep-water channels along the Texas gulf coast.

The *Mackenzie*, a sea-going hopper dredge, will dredge ship channels which extend into the gulf and which cannot be dredged with the pipe-line dredges used in the Intracoastal Canal and in sheltered waters.

The *A. Mackenzie*, skippered by Captain Carl Heil, arrived in Galveston on Dec. 9, 1951 after a 21-day trip from San Francisco via the Panama Canal.

She began dredging the seaward end of the channel which leads to Freeport Harbor. After dredging the channel at Freeport to a depth of 35 feet, involving the removal of 400,000 cubic yards of dredged materials, the *Mackenzie* is scheduled to dredge successively at Brownsville, Port Aransas and Sabine Pass.

This modern diesel-electric dredge, originally built in 1924 by the Sun Shipbuilding Co. of Chester, Pa., was completely modernized in 1949 after an enviable war record.

She is 268 feet 5 inches long, has a 46-foot beam and draws 14 feet of water empty and about 21 feet loaded.

After having been made seaworthy and armed with two 20-mm anti-aircraft guns, the dredge *Mackenzie* with her civilian crew left San Francisco on Aug. 3, 1943 for Midway Island. The 16-day trip to Midway was uneventful. The day after her arrival she began widening the entrance channel which she had previously dredged in 1940. As the coral was so hard in the channel, and had to be blasted before the dredge could pick it up, it caused exceedingly rapid wear and tear on all dredging gear, from dragheads to discharge chutes. Most of the delays on this job resulted from the need for frequent repairs, although some delays

Continued on page 30

MOVE BIG LOADS
faster, safer, for less!

with LaCROSSE trailers

To save costly delays and special handling charges, this ingenious contractor simply drove his La Crosse flat bed *right into the manufacturers' plant* under this huge 12½ ton ready-mix storage silo — lashed it securely into position — and drove it away in a few minutes. You, too, can save time, trouble and money by *doing your own equipment hauling* on job-proved La Crosse trailers. Choice of flat, drop, or tilting platforms—6 to 67 tons capacity. Write for free descriptive literature.

LC-22

Up to 2000 lbs. less dead weight per trailer.

Stronger goose-neck construction.

Safer, more dependable brakes.

Stronger specially-built axles.

Check Today!

LA CROSSE TRAILER CORPORATION, La Crosse, Wis.

☐ Rush complete information on La Crosse trailers:
☐ Specifications ☐ Prices ☐ Delivery
☐ Send name of nearest La Crosse Distributor.
☐ We may buy a ..... ton trailer about ..... (date)

Name.....Title.....
Employed by.....
Address.....
City.....State.....

LaCROSSE
America's Favorite LOW BED TRAILER

Puts a River in its Place

THE BIG RED CHAMP BUILDS UP THE WALL. The International TD-24 is the work champ of the levee and of the world. It's the most powerful crawler tractor made, and the fastest. Also a champ for "handle-ability," with fingertip control for pivot turns, feathered turns, and turns with power on both tracks. All this means it moves more paydirt per day.

Four International crawlers help build wall to save town and mines from Ohio floods

Three times in five years the Ohio River rampaged through Rosiclare, Illinois. Each time it flooded the great fluorspar mines there, the biggest in the world, America's most important source of this vital fluxing agent used in making steel.

J. D. Barter Construction Co. was given the job of taming the river with a $360,000 flood wall. Four out of the five crawler tractors he put on the project are Internationals, and Sam Barter tells why:

"They really do a job, that's why! And they can take it as well as dish it out. We have one TD-18 with 3,000 hours that's never been touched. A TD-24 with 1,500 hours and not one minute's downtime."

Check with your own friends who own International crawlers. And ask your nearest International Industrial Distributor for details on the whole International line. He's always at your call with expert service both in his shop and at your job site. Get the low-down. You'll go International from then on in!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILL.

INTERNATIONAL

INTERNATIONAL HARVESTER

POWER THAT PAYS

Continued from page 27

were attributed to blackouts and submarine alarms.

On Nov. 1, 1943 the *Mackenzie* sailed for Funafuti, an island in the Ellice Islands group, where she deepened the entrance channel and experienced her first enemy air attack on Feb. 4, 1944. In Captain Heil's words, "we had the pleasure of seeing what appeared to be the whole Pacific fleet streaming through the channel we had just finished."

She successively dredged Tanapag harbor at Saipan, Tinian harbor—where she experienced daily air attacks—and at Guam.

She arrived at Okinawa on Sept. 6, 1945 and rode through her first typhoon undamaged. However, the typhoon of the 8th of October with 147-mile-an-hour winds, proved to be too much for the *Mackenzie*.

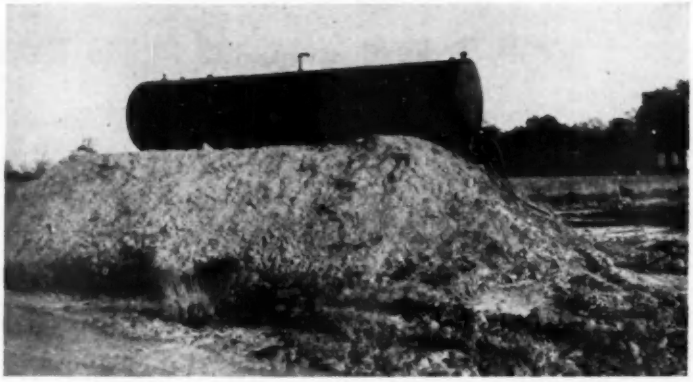
The crew of the *Mackenzie* miraculously suffered no injuries, although the vessel was damaged severely, as were over 300 vessels on both sides of Okinawa.

After temporary repairs made at Okinawa, the *Mackenzie* was towed into a floating dry dock and made seaworthy for her trip home. She arrived at Pearl Harbor on Dec. 5, 1945 and reached San Francisco on Jan. 8, 1946.

The *Mackenzie* is the only hopper dredge in the Galveston district today. Dredging companies under contract with the Galveston district of the Corps of Engineers use pipeline or hopper dredges.

The basic difference between a pipeline and a hopper dredge lies in the fact that a pipeline dredge pipes dredged material to an adjacent disposal area, while the latter fills her "hoppers" with dredged material and dumps her load after moving to a designated dumping area.

The *Mackenzie* has a hopper capacity of 1,656 yards of dredged materials with 24-inch dragheads and 26-inch discharges. She can attain a speed of 12 knots and carries a crew of 54 men.



• Excavating and construction concerns may profit from this idea used by the DeLauter Coal Mining Co., North Lima, O. Diesel powered draglines and shovels are used in stripping and loading the coal. The problem of convenient fuel supply for this equipment was simply solved. Instead of building a tower to support the fuel tank above ground level and tearing it down and rebuilding it on new sites of operations, DeLauter simply builds up high mounds of earth with the power shovel and places the tank on top: a quick, cheap, and safe method.

Build New Jersey Bridge in "Record" Time

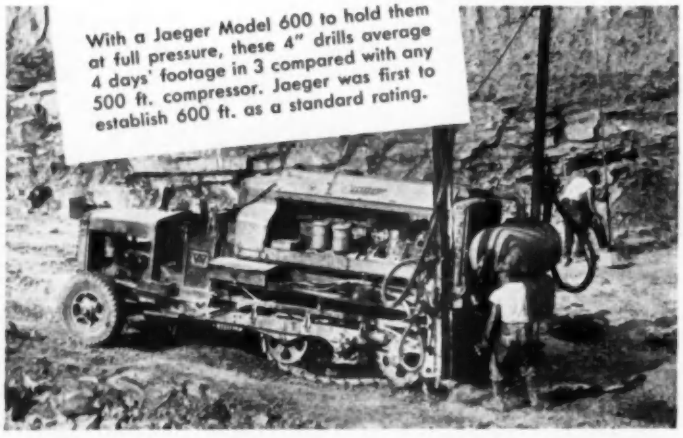
The Garden State Parkway bridge over Jakes Branch of Toms River is not very large, but the chances are it has established an all-time construction record for the State Highway Department.

According to State Highway Commissioner Ransford J. Abbott, this bridge was completed almost before its construction was scheduled to start. Here is how it happened:

Bids for the Jakes Branch crossing in Ocean County were received on Nov. 1, 1951. Ole Hansen & Sons, of Pleasantville, was the low bidder at $44,350, and the job was awarded to that firm.

Under standard Highway Department procedure, a contract for the specified work must be drawn up and executed before a job award becomes binding. This is a legal matter which involves an element of time. After the contract has been prepared and signed, the contractor is generally allowed ten days in which to assemble his working force and equipment on the construc-

40% more footage with JAEGER air-plus pressure


With a Jaeger Model 600 to hold them at full pressure, these 4" drills average 4 days' footage in 3 compared with any 500 ft. compressor. Jaeger was first to establish 600 ft. as a standard rating.

Want to cut costs? See your Jaeger distributor or get Catalog JC-1

4 days' work in 3 is possible on many jobs where Jaeger's increased "new standard" ratings step up the speed and hitting power of air tools. A Jaeger 75 will efficiently run one heavy breaker. A Model 125 will run two. Jaeger's 185, 250 and 365 ft. models deliver 25 to 50 cfm more air than "old standard" compressors to run larger tools at full efficiency.

THE JAEGER MACHINE COMPANY 553 Dublin Avenue Columbus 16, Ohio

PUMPS • MIXERS • TRUCK MIXERS • PAVING SPREADERS and FINISHERS

You're looking at the dam from the cableway operator's control station. The track cable extends from the head tower 2420 feet across the river canyon to the tail tower (upper circle). The 8-yard bucket (lower circle) is loaded at a dock beneath the control station. G-E amplidyne control provides fast operation and flexibility, needs only minimum maintenance.

WORLD'S FASTEST CABLEWAY speeds dam construction . . . electrically!

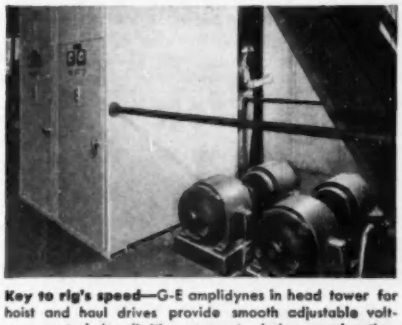
G-E powered rig at Pine Flat Dam hoists and hauls at same time; has poured 4000 yards in single day!

At Pine Flat Dam on the Kings River near Fresno, California, the General Electric powered cableway—fastest in the world—is setting new pouring records to help build the world's ninth highest dam. A Corps of Engineers project, the dam is being built by Pine Flat Contractors Associated Companies.

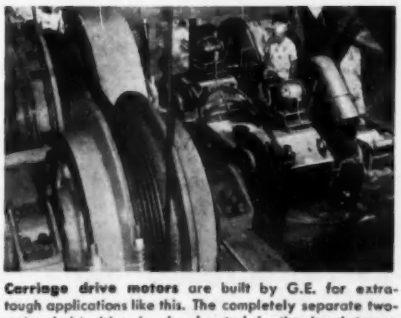
The Pine Flat rig, built by Willamette Iron and Steel Co., is the first ever designed with G-E amplidyne control—for faster acceleration, greater precision, smoother operation. In addition, a new concept of power application permits hoisting and hauling at the same time. Automatic braking makes operation safer. Smoother acceleration lessens wear on cables and other equipment. And power losses during acceleration and deceleration are reduced.

For faster, safer, easier operation of *your* construction equipment, electrify with G-E drives and power distribution systems—backed by G-E engineering help in application, installation, and service. *General Electric Co., Schenectady 5, N. Y.*

Ask him today! **Whether you buy or build construction equipment, your G-E representative can show you how to do a better job—at lower cost—by complete electrification. Write him now, and he'll call on you at your convenience.**



Key to rig's speed—G-E amplidynes in head tower for hoist and haul drives provide smooth adjustable voltage control by limiting current during acceleration.



Carriage drive motors are built by G.E. for extra-tough applications like this. The completely separate two-motor hoist drive is also located in the head tower.

GENERAL ELECTRIC

664-20

tion site. After that, the official working days begin.

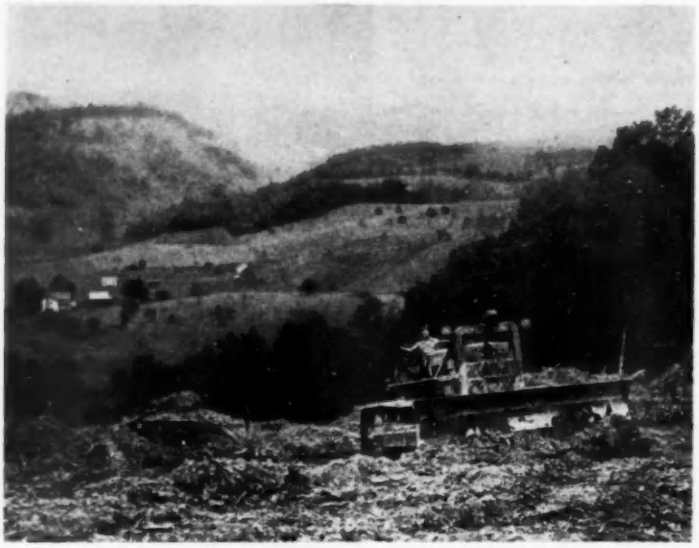
The Hansen firm decided that no risk was involved in starting construction immediately after Commissioner Abbott made the original award on the 1st of November, especially since they had men, materials, and equipment located on an adjacent section of the parkway.

Therefore, they got busy with a high degree of determination and ingenuity. As a result, the bridge was completed on the 14th of December, exactly one week after the official working days began. Jakes Branch, acquired its name from a legendary Barnegat Bay character of the past century.

Build Airport in "Sky" in West Virginia

Slicing off mountain peaks to provide a level area in West Virginia's tumbled terrain, crawlers and scrapers are building a landing strip in the "sky" at Mercer County Airport, now under construction between Bluefield and Princeton, W. Va.

Grade elevations of the airport range from 2,811 to 2,874 feet. The original landing strip will be 300 by 2,600 feet. Two more landing strips, one 400 by 5,100 feet and the other 100 by 4,900 feet, will be constructed in the near future. A terminal building will complete the project.



● It takes considerable climbing before reaching the airport now under construction in Mercer County, W. Va. Here, one of Keely Construction Co's. International TD-24 tractors equipped with Bucyrus-Erie bullgrader dozes an access road to the new "airport in the sky" being balanced on the mountain peaks near Bluefield, W. Va.

While the eventual cost, borne jointly by the Civil Aeronautics Administration and Mercer County, will reach $1,500,000, the initial contract amounts to $327,000 and provides for grading and drainage. Keely Construction Co. of Clarksburg, W. Va., the contractor, is moving 430,000 yards of earth and providing 4,105 lineal feet of storm water drains on this phase of the job.

Since Mercer County Airport will be served by two airlines and handle the private traffic from two cities, it is expected eventually to exceed Charleston, W. Va., in total traffic.

Natural Rubber Grows Again in Western Hemisphere

Plantation rubber now can be grown successfully and economically in the Western Hemisphere, P. W. Litchfield, chairman of the board of the Goodyear Tire and Rubber Co., revealed in the current issue of his "Notes on America's Rubber Industry."

Fifteen years of cultivation on 2,500 acres in Costa Rica has demonstrated that natural rubber of the plantation variety can be produced there at sufficiently low cost to compete with the output from the Far East, Litchfield writes. Goodyear technicians, working with experts from the U. S. Department of Agriculture, also have overcome the serious leaf blight which previously afflicted the native Para rubber tree when closely cultivated in plantation form in Central and South America, he disclosed.

Underlying significance of these developments, is that the United States can lessen the peril of being cut off from sources of natural rubber supply.

Litchfield suggests that 300,000 acres of new rubber plantings, which ultimately would yield 150,000 tons of natural rubber annually, be developed in the climatically suited zone stretching from the southern part of Mexico to Brazil and Bolivia. He estimates the cost of such development at $100 million spread over a six to seven year period up to the point of tapping the trees.

"Thereafter, on the basis of existing wage levels, it would be on a self-liquidating basis," he added.

The governments of 14 countries in tropical America are participating with the Department of Agriculture in cooperative programs designed to stimulate the planting of rubber and the development and exchange of new and better planting material.

"What these nations want from us is guidance in developing such projects and assurance of markets," Litchfield continues. "We are clearly in position to give both guidance and assurance."

Litchfield urges that the United States take the lead in the development of a hemespheric rubber policy among our Latin American neighbors. "Our own country's course in the matter of

THE RED U-BOLT TELLS YOU

1 They're drop-forged
2 Hot dip galvanized
3 They're genuine

CROSBY CLIPS

4 They're America's largest-selling DROP-FORGED WIRE ROPE FASTENERS
DISTRIBUTORS EVERYWHERE

AMERICAN HOIST & DERRICK CO.
ST. PAUL 1, MINNESOTA

rubber policy has been erratic and short sighted. When a rubber crisis develops we spend lavishly and improvise wildly. When the crisis has eased, we pull back into our comfortable shell and do nothing.

"The time has come when we should mend our ways. It will take time, money and intelligent effort. But now we know we can make the effort pay off in terms of heightened security and permanent economic gain. The orderly rows of Hevea trees on our Costa Rican outposts have given us a sound foundation for action."

Urge "Good Housekeeping" With New Safety Film

Production on a new safety movie outlining good housekeeping practices in the construction industry was started recently by the motion picture bureau of the Aetna Casualty and Surety Co. Entitled "Good Housekeeping—For Men Only," the new film will illustrate how orderliness on the job can improve working conditions, prevent accidents and help maintain construction schedules.

First scenes for the motion picture, which will be produced in full color, were filmed in Providence, R. I., at the $3,700,000 Manton Heights housing project now being constructed by the Gilbane Construction Co.

The movie, scheduled for release in 1952, will be the third in a special series produced in recent years by Aetna on safety precautions in the construction industry. The other films are "Before the Blast," dealing with the handling of commercial high explosives, and "Ladders, Scaffolds and Floor Openings."

Test Dam Sites on Idaho's Snake River

Core-drilling is underway at potential dam sites in a stretch of the Snake River near Eagle Rock, 6 to 10 miles downstream from American Falls Dam, to ascertain the feasibility of constructing a dam there. It would provide pumping power and power revenues for irrigation of 10,000 acres on the Michaud Flats.

The work is being undertaken to obtain engineering data for a proposed project planning report which will cover the engineering and economic feasibility of developing the Michaud Flats bench. The dam would generate power for pumping water from the Snake River to the new land area and provide the power revenues necessary to help the prospective water users repay the cost of bringing the water to the land.

Continued on page 36

HERE'S WHY

HERCULES
FLATTENED STRAND
IS 10% STRONGER

It Packs More Steel Than Any Other Construction

SEE the keystone shape of the strands? Notice how compactly they fit together? That's the answer. There is more steel and *less* fiber in HERCULES Flattened Strand than in any other wire rope construction of equal size. And if you specify wire rope core, you get *still* more strength—7½% more—in the same diameter. That extra strength is often mighty useful—safer, too.

SEE how smoothly it fits the sheaves? Not one—but *four* wires in *each* strand touch the groove. That gives *longer* life to the rope . . . longer life to the sheave, too, because Flattened Strand's smooth outer surface prevents corrugation. And it's Preformed for easy handling.

The Red Strand is always your assurance of wire rope made of the finest steel and to the highest standards LESCHEN has developed in 95 years of rope making.

HERCULES RED STRAND
TOUGH ROPE FOR ROUGH JOBS

"Wire Rope Handbook"
tells why, and where Flattened Strand can best fit into your particular operation. Write for Booklet N-2.

LESCHEN WIRE ROPE

Consult our Engineering Department for specific recommendations. A. LESCHEN & SONS ROPE CO., 5909 Kennerly Ave., St. Louis 12, Missouri. Distributors in all principal cities.

LONE STAR STEEL

It takes Tournadozer only 45 minutes to clean around 4 draglines and a shovel over a 1.3 mile distance.

After 3000 hours work in highly abrasive materials, substantial part of original tread still remains on Tournadozer's 21.00 x 25 low-pressure tires. After further use, these tires will be re-treaded for additional mileage.

LETOURNEAU LET EQUIPMENT

R. G. LeTOURNEAU, INC.,

PEORIA, ILLINOIS

replaces 3 crawlers with 1 Tournadozer

"Very fine for clean-up work," says Supt. W.L.KENDRICK

Texas' largest pig iron producer, the Lone Star Steel Co. of Dallas, has greatly simplified and speeded clean-up operations at their Daingerfield open pit mine by replacing three 144 h.p. crawler tractors with 1 high-speed rubber-tired 186 h.p. C Tournadozer.

The 19 m.p.h. Tournadozer regularly serves 3 to 5 draglines and shovels . . . while, previously, each crawler could clean up around only 1 or, at the most, 2 excavators. In addition, Tournadozer handles a lot of widely-scattered dozing jobs . . . is literally all over the mine, 16 hours a day, 6 days a week, helping keep daily ore production at scheduled 15,000 tons. As W. L. Kendrick, Lone Star's division superintendent and a veteran of many years on the Mesabi Range and at Daingerfield, describes it:

"For our work, where speed, mobility and power are essential, Tournadozer has proved very satisfactory. It's a fine machine for cleaning up around shovels, pushing trucks in soft footing, and doing miscellaneous dozing. We are very pleased with its performance."

These "miscellaneous" tasks at present include: blading and cleaning haul roads . . . dozing overburden . . . cutting ramps from haul roads to loading areas . . . preparing dragline sites . . . and hauling equipment. Material ranges from rock and heavy limonite ore (weighing over 4,100 lbs. per cu. yd.) to sand, clay, and even gumbo. Tournadozer does particularly well in pushing trucks through soft going, because its speed and the smooth control of its instant-shift transmission keep it pushing steadily against truck as footing improves and haul speed increases.

3000 hours, 90% efficiency, tires still good

With 3000 hours of rugged service on these tough, high-speed assignments, Tournadozer has given over 90% efficiency. Despite the abrasive, rocky materials, the "C's" 21.00 x 25 low-pressure tires *still carry a substantial part of their original tread* (see photos). After additional wear, the tires will be re-treaded.

This is just one of a series of world-wide jobs where rubber tires, *rolling on dirt*, sand, rock and ore, are proving far more productive and economical than tracks *wearing in dirt*. See your LeTourneau Distributor for all the facts . . . let him demonstrate to you that frequent and costly track repairs can be eliminated. Let him show you how Tournadozer's 19 m.p.h. speeds, its simple steering controls, and electric-controlled down-pressure blade will move more dirt at a lower cost.

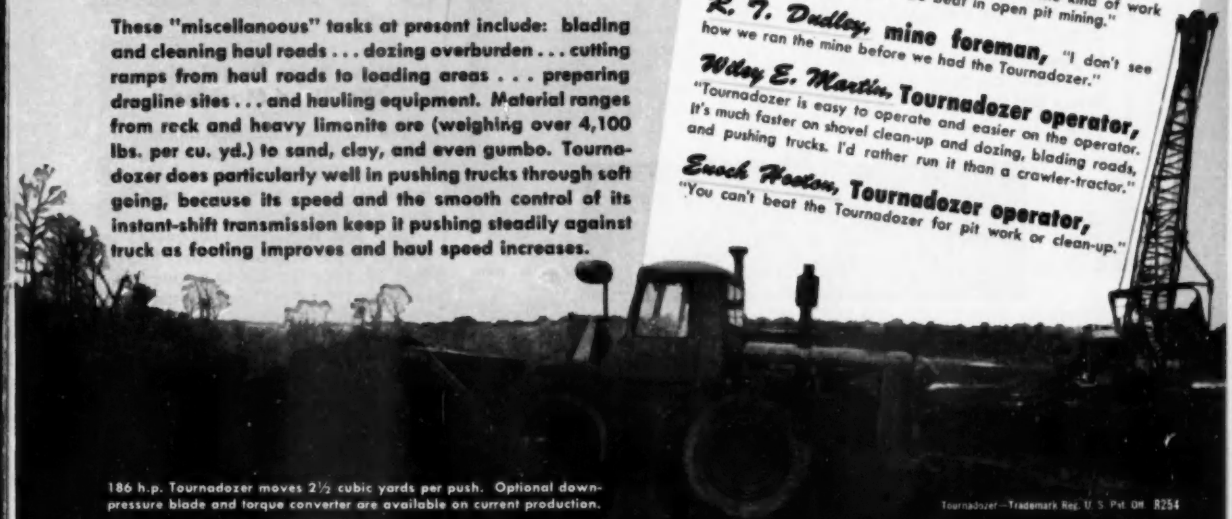
READ WHAT MEN WORKING THIS JOB SAY ABOUT TOURNADOZER

M. J. Hughes, mine superintendent, "It's the best machine I've ever run into for the kind of work we have it doing. It can't be beat in open pit mining."

R. T. Dudley, mine foreman, "I don't see how we ran the mine before we had the Tournadozer."

Wiley E. Martin, Tournadozer operator, "Tournadozer is easy to operate and easier on the operator. It's much faster on shovel clean-up and dozing, blading roads, and pushing trucks. I'd rather run it than a crawler-tractor."

Enoch Heaton, Tournadozer operator, "You can't beat the Tournadozer for pit work or clean-up."



186 h.p. Tournadozer moves 2½ cubic yards per push. Optional down-pressure blade and torque converter are available on current production.

Tournadozer—Trademark Reg. U. S. Pat. Off. 8254

HIGH-SPEED, RUBBER-TIRED EXCAVATING • HAULING • LIFTING EQUIPMENT

The MAJORITY of Your
Heavy Hauling Jobs
can be handled
PROFITABLY with...
the POPULAR

ROGERS Type "T"

LARGE CAPACITY IN AN 8 FT. DECK WIDTH—LEGAL IN ALL STATES. 8 TIRES ON 2 ROCKING STUB AXLES WITH LEVEL OR DROP DECK IN 15, 20, 25, 30 and 35 TON CAPACITIES

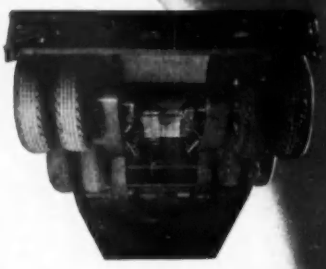
By reason of its versatile adaptability to all kinds of heavy hauling jobs, the Rogers Type "T" has steadily increased in popularity.

It's a "natural" for small and large contractors and haulers.

If you are considering the purchase of one or more trailers, by all means investigate the Type "T".

It packs powerful advantages in a multi-purpose single unit.

Write for full details and catalog.

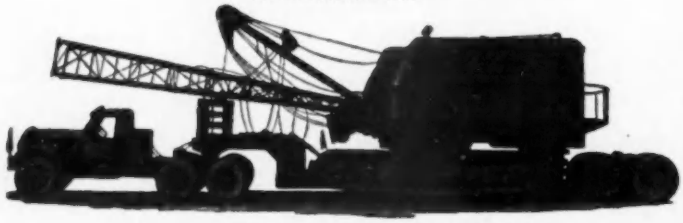


A worms-eye view of the sturdy rear end and frame construction of the famous "T".

The rear end design of the Type "T" has proved so efficient it has been adopted as standard construction in Rogers Power-Lift Detachable Gooseneck Trailers.

EXPERIENCE builds 'em — PERFORMANCE sells 'em

ROGERS BROS. CORP.
ALBION, PENNA.
136 ORCHARD ST.



"RODGERS I BEAM OR GIRDER TRAILER"

News

Continued from page 33

Plans for the drilling program were discussed recently between regional office officials of the Bureau of Reclamation in Boise and directors of the American Falls Reservoir District. The irrigation leaders voiced enthusiasm over the program.

The bureau already has completed drilling one hole to a depth of 126 feet and contemplates completing a second shortly. Original surveys of the Snake in this area were made by the Bureau of Reclamation in 1907 and 1916.

Special Projects Engineer Named by Asphalt Institute

The Asphalt Institute, has announced the appointment of Jewell R. Benson, as Special Projects Engineer, to promote the use of asphalt for the U. S. reclamation program and other special purposes.

With his office at 1250 Stout St., Denver, Col., Benson will be engaged on a national scale in directing and coordinating the institute's studies with field engineering activities relating to canal, reservoir and pond linings, dam facings, erosion control and all other special asphalt uses.

For the past five years Benson has been with the U. S. Bureau of Reclamation at Denver as bituminous engineer and head of the bituminous laboratory. At the Denver office of the institute, Benson will extend cooperation in matters relating to reclamation, allied, and other special asphalt-use activities.

New Price Regulation Hits Used Machinery

The Office of Price Stabilization recently issued a new tailored ceiling price regulation to cover sales of used industrial and construction machinery and related equipment.

The new regulation, designated as Ceiling Price Regulation 105, effective Dec. 17, 1951, applies to a wide range of several hundred items of used machinery and related equipment as listed in appendices to the order. Included are boilers, conveyors, cranes, cutting tools, dies, derricks, dredges, engines, motors, hoists, railroad equipment, excavating equipment, snow plows, turbines, X-ray apparatus, stokers, etc.

In general, ceiling prices are determined for rebuilt and guaranteed equipment and for equipment that does not qualify as being rebuilt and guaranteed.

The ceiling price for rebuilt and guaranteed equipment is established at

85% of its applicable base price. For equipment which is not rebuilt and guaranteed the ceiling price is established at 55% of its applicable base price. However, in either case a ceiling price may be determined under a depreciation method prescribed for certain types of equipment listed in Appendix B at annual rates of depreciation ranging from 3% to 30%. These rates are applied to the base price. In the case of equipment which is not rebuilt and guaranteed, the depreciation method of pricing must not result in a ceiling price of more than 80% of the base price.

New Orleans Dredgers Sign Venezuelan Contract

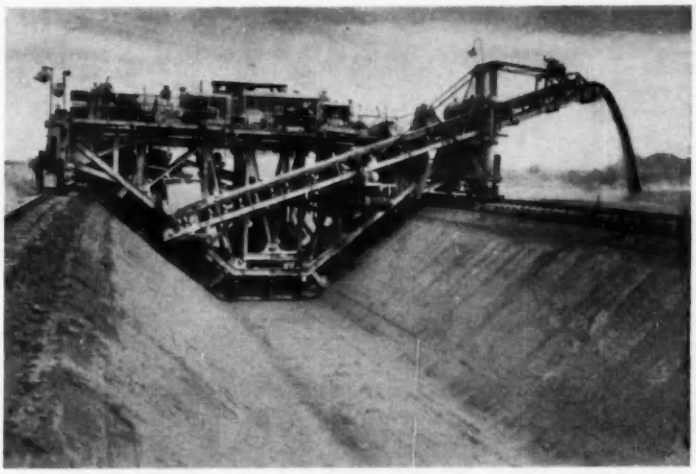
McWilliams Dredging Co. of New Orleans, La., recently signed a contract to open 170 miles of waterways in Venezuela so that iron ore can be brought out from the Cerro Bolivar mines.

The work will be undertaken by the McWilliams Dredging Overseas Corp. —a subsidiary owned by McWilliams Dredging Co. and the Gahagan Overseas Construction Co. They are acting under a joint venture agreement, for the Orinoco Mining Co., a subsidiary of the United States Steel Corp.

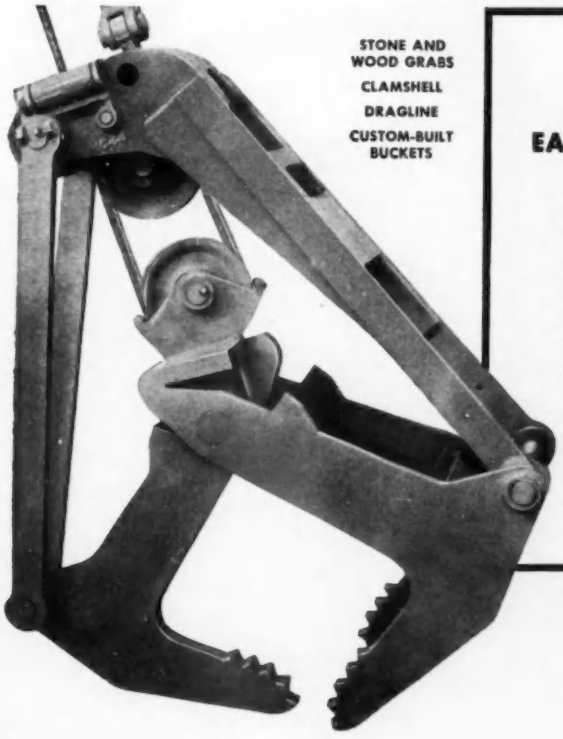
Achille Guibet, president of the McWilliams Dredging Co. explained that the dredging will be done to permit movement of ore ships from the Gulf of Paria up the Cano Macareo and the Rio Orinoco to the ore loading docks at Puerto Caroni.

Since there is some deep water already, Guibet pointed out that the total length of the 170 miles of waterway will not be dredged. Guibet said that the 170 miles will be made navigable for the ore vessels after more than 40 miles of that length is deepened and widened. He estimated that it will be necessary to remove about

Continued on page 40



• Six Caterpillar engines provide power for ditch trimmer, slip form and pointing and caulking platform working on the Welton Mohawk project in Arizona. Digging, lining and finishing canal is progressing at rate of 2½ miles per week.



STONE AND WOOD GRABS
CLAMSHELL
DRAGLINE
CUSTOM-BUILT BUCKETS

WELLMAN

EASY HANDLING OF LARGE STONES

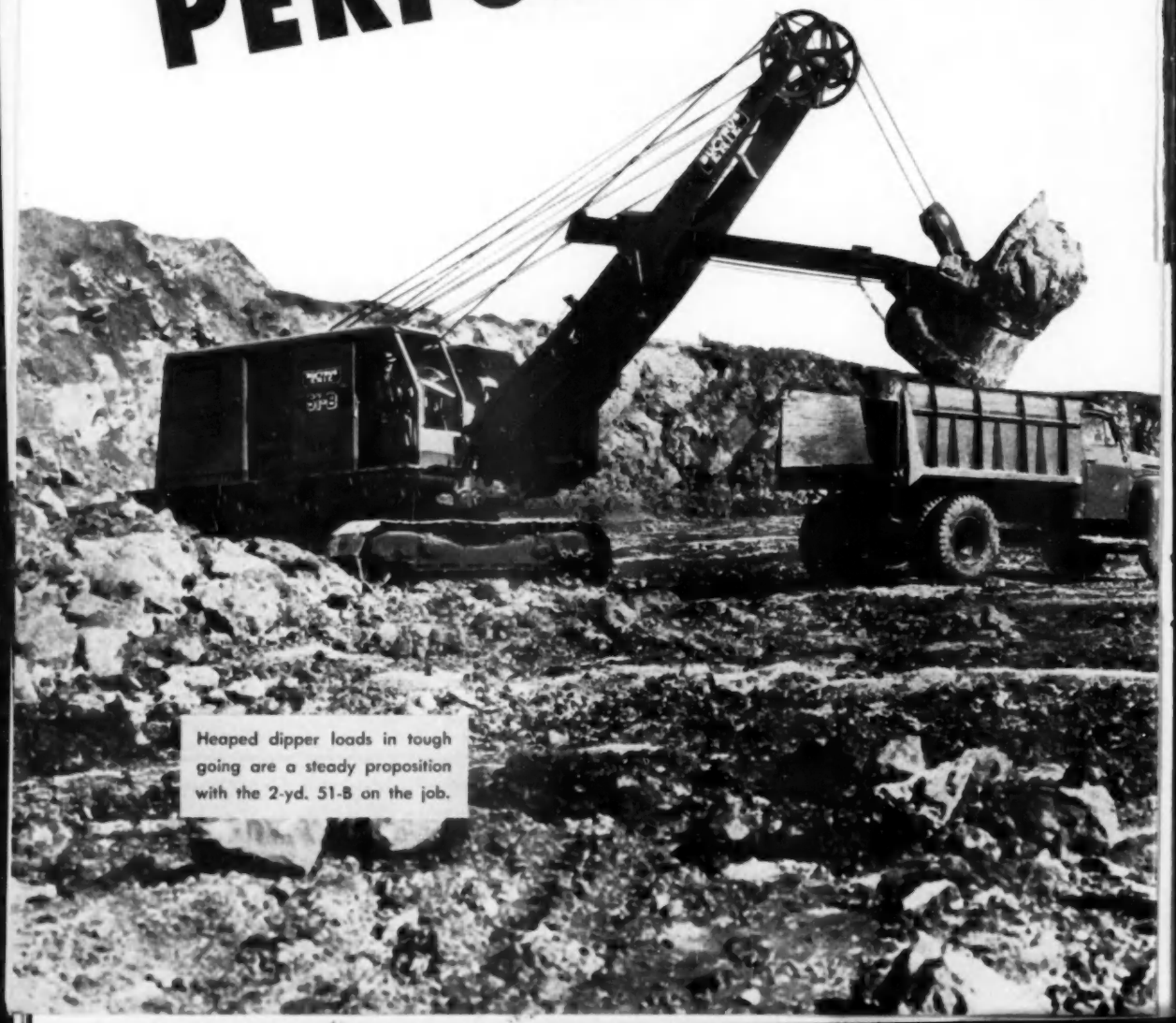
• Those big stones won't slip from the Wellman Stone Grab. Four-part closing cable reeving develops tremendous closing force on stones. Model shown has 5-ton capacity, 4½ foot jaw spread. Other capacities available.

Want Facts? Send for free descriptive bulletins.

THE WELLMAN ENGINEERING COMPANY
7000 Central Avenue
Cleveland 4, Ohio

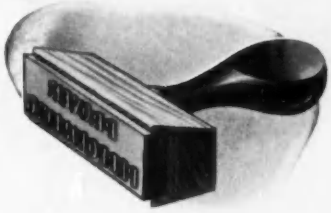
---*Mark*

PROVEN PERFORMANCE



Heaped dipper loads in tough going are a steady proposition with the 2-yd. 51-B on the job.

# of a Preferred Excavator



THE four most important measures of excavator performance are a smooth fast work cycle, ability to stand up under punishment, quick front end convertibility, and ease of maintenance. Bucyrus-Erie fills the bill on all four.

Bucyrus-Erie's outstanding design balance ties in the dig-swing-dump operations smoothly and efficiently. Highly responsive controls, smooth clutch action and positive, independent crowd help operators get bigger loads every pass . . . more passes every hour than ever before.

There are seven different Bucyrus-Erie models in the ⅜- to 4-yd. range of gasoline, diesel, and single-motor electric machines — each with size and strength throughout to match its rated capacity. Each can be quickly converted in the field to the front end that produces the best job efficiency. And simple, clean design makes parts readily accessible, maintenance easy.

Best proof that these features bring top performance is out in the field. For instance, yardage-wise owners have bought more 10-B's than any other ⅜-yd. excavator . . . more Bucyrus-Eries for rock than any other make. The record shows that with owners, operators and maintenance men alike, Bucyrus-Erie is the one line that's

259E51C

Most Compared

Most Preferred

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

HOW TO GET
Larger
BUCKET
PAYLOADS

This new Erie Catalog makes it possible to quickly choose, from the 4 classes of Erie 2-Line Buckets, the right bucket for *your* crane and material. Perhaps your crane can operate a larger bucket, for Erie alloy welded steel buckets result in greater payloads through scientific bucket weight reduction. Remember, that on bucket work, the cost of the crane and the operator all ride on the bucket. Send for this helpful catalog or outline your conditions and our engineers will make recommendations.

Write for Catalog **2L-1** *Today*

ERIE
STEEL CONSTRUCTION COMPANY
4222 GEIST RD., ERIE, PA

News

Continued from page 37

30 million yards and that additionally there will be a job of maintenance and corrective dredging.

The project will include the dredging of a ship basin at the Port of Caroni where the ore docks will be located and the dredging of a channel from the docks via the Rio Orinoco and the Cano Macareo to deep water in the Serpent's Mouth, a strait lying between Venezuela and the island of Trinidad.

Equipment to be sent by McWilliams includes the Caribbean—a powerful ocean-going, steel, cutterhead hydraulic dredge. Gahagan Overseas Construction Co. will furnish their dredge Peru.

Better Highway Campaign Rolls Ahead

For the past several months Goodyear Tire & Rubber Co., Inc., Akron, O. has been engaged in a national advertising campaign "to solve the highway crisis that threatens the country's well-being." The company says that the purpose of the campaign is "to start the ball rolling" in the hope that others will help increase public demand for better roads.

It is pointed out that over 49 million vehicles are using an inadequate road system. "Even as recently as 1947, highways were being planned to accommodate 46 million motor vehicles by 1970. Yet today almost 50 million vehicles are already jammed upon the roads—a plus of four million vehicles 19 years ahead of time."

Raymond H. Clark

Raymond Harold Clark, 49, president of the R. H. Clark Equipment Co. and of the Oak Ridge Sand Co. of Mulberry, Fla. died the 24th of

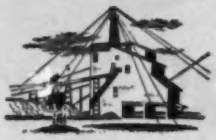
November at a Lakeland, Fla. hospital. He had been ill for quite some time.

Mr. Clark was born in Mulberry and attended the University of Florida in Gainsville. In addition to his other business affiliations, he was an agent for the Standard Oil Co. for 25 years.

Fishing, hunting, and golf were other avid interests of Mr. Clark. He was also a member of his local Kiwanis club. Among the survivors are his wife Mrs. Dorothy Clark, a daughter and a son.

• A worker at the Marion engineer depot, Marion, O., uses the new Joeger 365 cfm air compressor, powered by a 165 hp Model HRBI-600 Cummins Diesel, to sand blast bridge forms prior to painting them with a prime coat.

For logging



For sand and gravel

For aircraft

For marine

For construction

For stone quarries

For elevators

For mining

For drilling

For industrial

For better service and more economy . . . use

MACWHYTE WIRE ROPE

PREformed and Internally Lubricated

A THOUSAND AND ONE

to order from assures the right rope for your equipment

There is a Macwhyte Wire Rope that has been specially engineered and job-proved for any particular type of equipment you operate. That's why it pays to specify Macwhyte. Over the years, ropes for all types of equipment in every field have been developed by Macwhyte. Recommendations are promptly available either from Macwhyte distributors or Macwhyte Company, 2903 Fourteenth Avenue, Kenosha, Wisconsin.

Ask for these helpful bulletins:

"Wire Rope—So What?" (No. 5134)—Illustrated exclusive interview with veteran wire rope engineer who talks straight from the shoulder about saving hundreds of wire rope dollars.

"How to Order Wire Rope" (No. 5025)—Tells exactly what to consider. Also includes convenient table of sizes, constructions, strengths and weights of Improved Plow Steel Wire Ropes.

Mill depots: New York • Pittsburgh • Chicago • Minneapolis • Fort Worth • Portland • Seattle • San Francisco • Los Angeles. Distributors throughout U. S. A. and other countries carry stocks.

1010

. . . with 1-SECOND GRAVITY DUMP

IT takes just one second to dump a full 6-yard load with Koehring heavy-duty Dumptor. Operator trips the body release lever and gravity instantly tilts the scoop-shaped body 70° . . . one second later the body is empty, and Dumptor is on its way back for another load. Because there's no waiting for slow-acting body hoists, Dumptor saves 15 to 25 seconds every dump. This adds up to important gains in yardage output. At 16 trips per hour on a 1,000′ haul, 20 seconds dumping time saved on every cycle gains 5.3 minutes more productive haul-time . . . adds 9% to hourly yardage output.

This is typical of Koehring Dumptor's basic principle . . . to reduce all non-productive time to the absolute minimum . . . and to increase work-time for more yards per hour, more profit per yard for you. Dumptor has many other cost-cutting advantages worth checking . . . see your Koehring distributor.

KOEHRING CO., Milwaukee 16, Wis.

Subsidiaries: JOHNSON • PARSONS • KWIK-MIX

CK12D

KOEHRING HEAVY DUTY

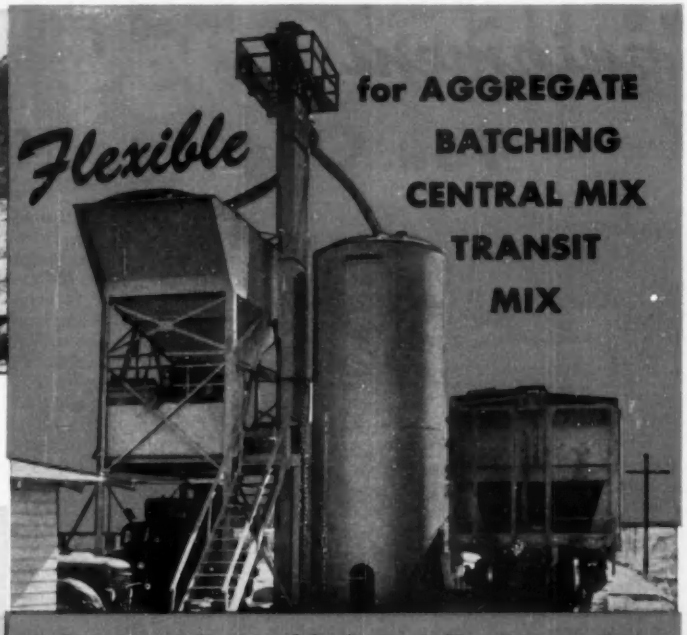
KOEHRING DUMPTOR®

EXCAVATORS • CRANES • PAVERS • FINISHERS • CONSTRUCTION MIXERS • MUD-JACKS®

TON DUMPTOR STRENGTH PER TON OF PAYLOAD . . .
Layered steel-oak-steel bottom, rib-reinforced body, heavily-trussed main frame provide ample Dumptor strength to stand up to severe loading shocks

NO-TURN SHUTTLE HAUL
Koehring constant-mesh transmission gives Dumptor the same 3 fast speeds forward and reverse, eliminates slow turns at the loading unit, on narrow haul roads, and at dumping location.

NO BODY HOIST means no complicated mechanical hoists to slow up haul cycles, no costly hoist replacement parts with Koehring Dumptors. Gravity dump is always instantaneous, trouble-free . . . no mechanical parts to wear out.



Johnson All-Welded Roadbuilders Bin

Flexible Johnson Roadbuilders All-Welded Bin can be used as a portable batch plant for handling 2, 3 or 4 aggregates. This same bin readily converts to Transit-Mix Plant (illustrated), or to Central Mix, for handling bulk cement and 2 or 3 aggregates. It also can be equipped with 1 or 2 multiple-material Hi-Speed Batchers, size 34 Roadbuilders Batcher, or with a truck-mixer charging batcher in 2, 3 or 4-yd. sizes. Bin is available with 2, 3 or 4 compartments, 50 to 125 cu. yds. capacities. It has easy-charging 11' width, extra wide fill and discharge openings, steep 50° bottom slopes for fast flow. Your Johnson distributor can show you more production-boosting, cost-cutting features. See him for all sizes, types of mix plants, bins, batchers, silos, buckets, elevators, accessory equipment.

Get the most from Johnson Plants . . . use Koehring Mixers.

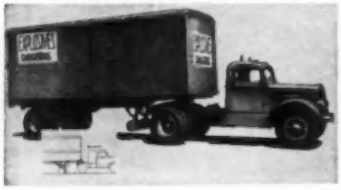
Also check Johnson for BIG PAYLOAD CLAMSHELLS

Heavy-duty Johnson Clamshell Buckets get capacity load every bite because all-welded construction lowers center of gravity, lets teeth dig in straight, deep. Big needle-bearing-mounted sheaves reduce friction power loss, deliver full digging power to teeth and lips. Hard manganese cutting edge welded to heavy lips gets tougher with use, assures big-payload performance. See your Johnson distributor. Types, sizes, ⅜ to 3 yds.

x7

(Koehring Subsidiary) **C. S. JOHNSON CO.** CHAMPAIGN, ILLINOIS

Equipment You Ought to Know About



Hauling Van

Manufacturer: Fruehauf Trailer Co., Detroit, Mich.

Claims: As a result of World War II experience with the hazards of hauling explosive powder, a special van has been developed.

Some of the safety provisions in these vans include body interiors in which all surfaces are of non-sparking metals. The walls and doors are lined with laminated wood fastened with brass screws. Brass bolts are used to fasten the oak floor to the steel subfloor.

Unloading is made easier by having maximum opening, full-width rear doors and optional side doors which swing back parallel to the trailer sides. All outside panels are completely weather-lapped and watersheds above doors prevent leakage. Wiring is protected by conduit and weatherproof junction boxes and connections.

The fully automatic coupling keeps the truck operator away from the explosive cargo. The coupling is completely cab-controlled. The driver simply backs the tractor under the trailer, which locks the king pin and raises the automatic supports in one motion. Uncoupling is likewise automatic and cab-controlled. The driver merely operates a hand lever inside the cab to disengage the king pin. He can then drive away. The trailer supports are automatically lowered and locked in the down position when the tractor is uncoupled.

Lights and mechanical brakes are automatically connected during coupling and disconnected during uncoupling. Brakes are also self-setting to prevent rolling when the trailer is uncoupled.

Small Excavator

Manufacturer: The General Excavator Co., Marion, Ohio.

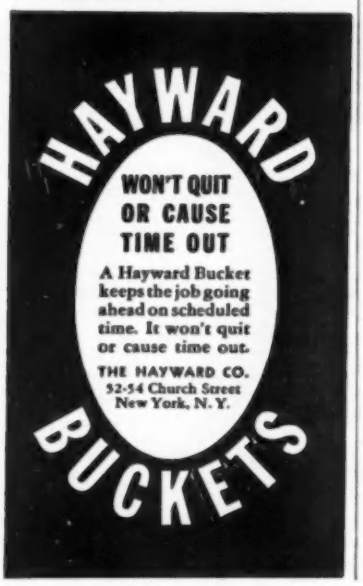
Claims: The newest addition to the line, the Model 320, a ¾-yd. excavator and material handler, is now in production.

The crawler base, machinery side frames and the deck, are made of castings and rolled structural steel shapes, used separately or in combination. Machinery mounted on the superstructure is placed well back on the deck, thus giving stability and increased lifting capacity, with a minimum amount of dead counterweight necessary. Ground bearing pressures are low.

The Model 320 is fully convertible to shovel, clamshell, crane, pile driver, dragline, and hoe work, in the field. The standard shovel boom length is 18 feet 8 inches, with a dipper handle of 15 feet 3 inches effective length. Standard crane boom length is 35 feet. Standard length of crawler is 11 feet 4 inches, with 20 inch, 25 inch or 30 inch treads available.

This is a manually controlled machine. Twin Disc clutches are used for swing and travel motions, for raising and lowering the boom and for shovel retract. Contracting band clutches are used on the hoist drums. Independent travel is optional.

Attention has been given in design to present a smooth and quiet running machine, with safety a prime factor. The reversing gears on the swing shaft, and the deck gears, are enclosed and run in oil. Anti-friction bearings are


HAYWARD
WON'T QUIT OR CAUSE TIME OUT
A Hayward Bucket keeps the job going ahead on scheduled time. It won't quit or cause time out.
THE HAYWARD CO.
52-54 Church Street
New York, N. Y.
BUCKETS

"Eat your spinach and you'll grow up to be a shovel-runner like your daddy."

Proved Performance

on the toughest jobs

On a wide range of jobs and under the toughest conditions, "Eucs" move more loads or tons per hour at the lowest cost. Large capacity, long life in heavy duty service, and speed on the haul and dump—these are features that assure low cost hauling and dependable performance.

Bottom-Dump Euclids have proved their rugged staying power and ability to do the toughest jobs in off-the-highway construction and industrial work. Powered by diesel engines of 190 to 300 h.p., they range in capacity from 13 to 25 cu. yds., and have top speeds loaded up to 34.4 m.p.h.

Rear-Dump "Eucs" are designed and built to move rock, coal, ore, overburden and other heavy excavation. They range in capacity from 10 to 34 tons, have top speeds up to 36.3 m.p.h. with full payload, and diesel engines of 125 to 400 h.p.

For help with your off-the-highway hauling problems, call your Euclid Distributor today or write for information on the complete line of Euclid equipment for moving earth, rock, coal and ore.

"EUCS" are job proved for more loads per hour and more profit per load.

The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO

CABLE ADDRESS: YUKLID — CODE: BENTLEY

EUCLIDS *Move the Earth*

used on all continuously running shafts. The boom hoist is provided with a spring-set, cam-released band brake, which is automatically set when the clutches are disengaged. Positive swing lock or friction swing brake or both can be provided. The cab floor plates are of anti-skid design. Where gears are not completely enclosed, they are guarded, for clean and safe operation.

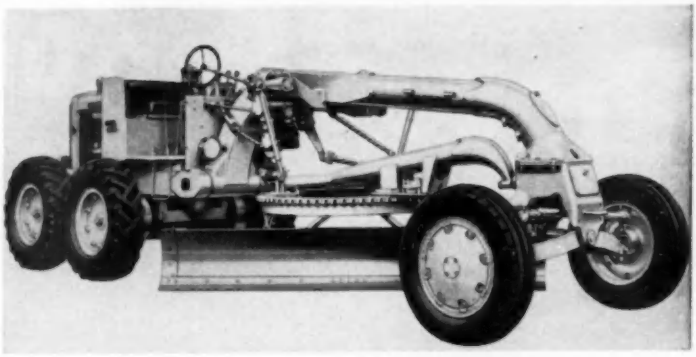
Boom hoist is the worm and worm wheel type, carried on anti-friction bearings. Automatic safety brake, mentioned above, adds to safety in holding boom. The boom is raised and lowered under power, using the clutch on the countershaft for raising and a separate clutch for lowering. On all other operations except with shovel front end, the boom hoist is entirely independent of other motions.

Motor Graders

Manufacturer: Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Claims: Two new motor graders—models AD-40 and AD-30 complete a line of five motor graders having a wide range of horsepower, weight and speed.

The 4 cylinder, 2-cycle, Diesel powered AD-40 weighs 23,000 lbs. and develops 104 brake horsepower. The



AD-30 is powered by a 3 cylinder 2-cycle Diesel engine, weighs 22,700 lbs. and develops 78 brake horsepower.

High axle clearances, the roll-away moldboard and accurate blade control combine to move loads faster. New standards of operating ease incorporated include easier shifting, complete visibility, hydraulically-operated steering and all around operator comfort.

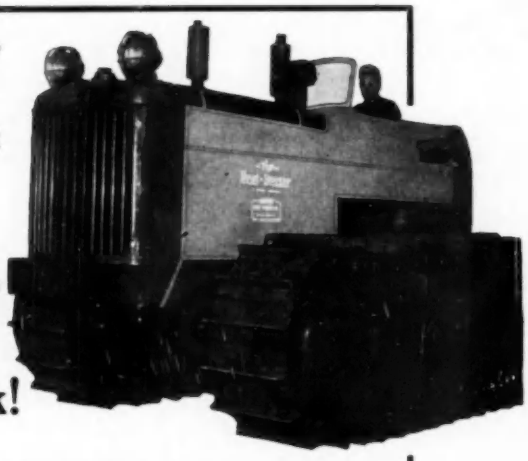
Completely enclosed in the main frame, a hydraulic booster system provides effortless steering even in tougher kinds of work.

A large platform, accessible controls and a needle bearing mounted adjustable seat, all contribute to comfort for the operator. New lift cases, low control box, a higher tapered platform and single tubular frame combine to offer complete operator visibility while sitting or standing.

Accessibility to major assemblies, for service or repair, is an important feature. A simple forward tilt of the combined fuel tank and seat gives immediate and complete access to the transmission, clutch and drive shaft. Both the clutch and transmission can be removed independently from the AD-40 and AD-30 without disturbing the engine or floor plates.

Mounted on the outside of the dash, the hydraulic pump and power take-

Increased **EFFICIENCY**
For Operator and Equipment
with the
genuine
Heat-Houser
Keep Warm While You Work!



Heavy duty, waterproof canvas tailored for a tight fit and designed for ful-vue vision and plenty of operator room offers protection during those chilly operating days.

Adjustable heat control — streamlined and simple to install on your equipment, HEAT-HOUSER increases the operating efficiency of equipment and protects equipment from rain, snow, sleet and mud. Write for complete details. Sales and Service from Coast to Coast.

FORT DODGE TENT & AWNING COMPANY
INDUSTRIAL DIVISION
FORT DODGE, IOWA

off are out in the open for easy inspection, maintenance or repair.

Accessories and special equipment are available for the AD motor graders to increase their adaptability.

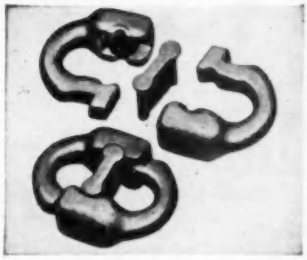
Connecting Links

Manufacturer: Interstate Drop Forge Co., Milwaukee, Wis.

Claims: "Universal" design in Wedglok safety connecting links for carbon and alloy chain users has been introduced. The links are stronger than alloy steel chain of comparable size.

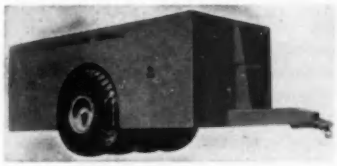
Only two sizes of Wedglok links are needed to connect any size chain from ¼ inch to ¾ inch, depending upon the type of chain used. Thus, distributors and users need not maintain complicated stocks for making chain or wire rope connections or emergency repairs.

Also, Wedglok links permit users to make up chain slings safely from run-



ning lengths of chain. They can assemble slings quickly right on the job—without special equipment, to fit their needs at a saving.

Other links are available in sizes up to 3 inches. They are used in material handling, chain operations in steel mills, foundries, industrial plants, oil fields, strip mining, logging and on construction work. They are often furnished on new equipment by leading manufacturers of draglines, railroad equipment and other products furnished with chain attachments.



Rubber Tired Roller

Manufacturer: Shovel Supply Co., Box 1369, Dallas, Tex.

Claims: A new Model RT-100-S 50-ton rubber tired roller is equipped with four 18:00x24 inch heavy duty tires. When inflated to 90 lbs. the roller exerts 1250 lbs. pressure per inch of tire

Continued on page 50

You'll be amazed at the savings you can make by mechanizing scattered earthmoving jobs — *on the same profitable basis as production digging* — with a job-proved Schield Bantam excavator ON RUBBER.

Low first cost — Truck-mounted Bantam costs only a fraction of the price of bigger machines . . . weighs less than 8 tons complete . . . uses only about 1 gal. of gas per hr.

Goes anywhere fast — Bantam drives over paved surfaces, back roads, or cross country at full truck speeds . . . maneuvers in tight spots where bigger rigs can't go.

Investigate today — Join the thousands of satisfied users who are getting more jobs done at less cost with high-speed Bantams. 8 versatile attachments. Write for free literature. Schield Bantam Co., 202 Park St., Waverly, Iowa.

58-SH-4

Shovel or dragline loads up to 90 cu. yds. of material per hr. for working small pits, feeding crushers, etc.

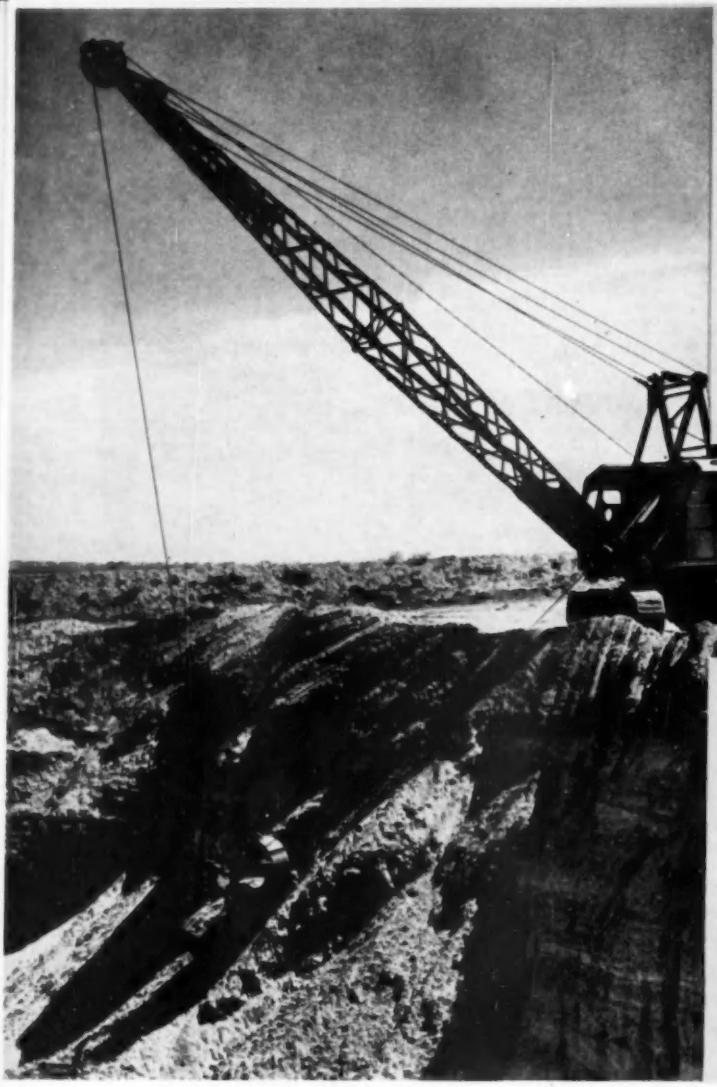
Hoe digs 100' of 5' trench per hr. Works to 14' depths. Ideal for sewer and water lines, drainage work, etc.

Clamshell loads up to 70 cu. yds. of loose material per hr. from stockpiles. Crane boom lifts 10,000 lbs.

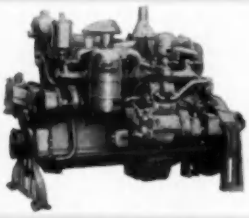
SCHIELD BANTAM

Cranes • Excavators

Get more jobs done at less cost



the power behind the drag



EVERY 40 SECONDS . . . ten hours a day, 26 days a month, 12 months of the year . . . this Northwest Dragline swings 1½ yards of sand and gravel on an excavation job out of Amarillo, Texas.

It takes plenty of steady power to keep a hungry bucket like that going. Western Sand & Gravel Company depends for that power on a D13000 "Caterpillar" Diesel Engine. "Our D13000 has done a splendid job," Company Superintendent P. E. Edwards reports. "Over 5,000 hours of engine operation with little or no repairs."

Five thousand hours—and almost a million tons of sand and gravel moved! "Cat" Diesel Engines are built for two-fisted jobs like that. And smart equipment operators like Superintendent Edwards know they can insure such dependable performance by giving their "Cat" machines the kind of care they deserve.

Good equipment maintenance pays off more today than ever before. So today, more than ever, check wear before it happens. Your Operator's Instruction Book can help you often. And your "Caterpillar" Dealer is always handy. Call on both—they'll keep your machines on the go!

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

NOT in the *Contract*

"Did you get that fellow's license number?"

"No, he was going too fast."

"That girl with him was some chicken."

"Yeah, I'll say she was!"

Hubby: "I guess you're pretty mad because I came home with this black eye last night."

Wife: "Not at all. When you came home you didn't have that black eye."

"Oh, darling, I love you so. I'm not wealthy, like Jerome Green. I haven't a car, or a fine house, like Jerome Green. But darling I love you."

"And I love you, too, darling; but where is this man Green?"

It's not always the coldest girl that gets the mink coat!

"The last time I went horseback riding I wanted to go one way and the horse wanted to go the other."

"What happened?"

"The horse tossed me for it."

Out in the middle of nowhere, two trains sped toward each other on the same track until they collided with a tremendous crash.

Reporters flocked to the scene, and one of them was questioning Slim, an old cowhand who was the only witness to the disaster.

"Tell me, Slim, what did you think when you saw those two trains coming together?"

Slim drawled his answer: "I thought that was one H—— of a way to run a railroad."

A young man took his girl to the open air opera one beautiful warm evening. During the first act he found it necessary to excuse himself. He asked the usher where the men's room might be found. "Turn left and walk down to the big oak tree, and there it is."

The young man did as he was told and in due time returned to his seat.

"Is the second act over yet?" he asked his girl.

"You ought to know," she replied. "You were in it."

A young man barged into a minister's home, a lovely young lady in tow, and exclaimed, "We want to get married. I beg you to make the ceremony as short as possible. Here are the credentials. They're in order. Those two ladies knitting over there will do as witnesses."

The minister, amused, performed the ritual, pocketed his fee, and then protested, "Remember the old adage about marrying in haste, my children. What's your hurry?"

The young man, already half way to the door, said over his shoulder, "We're double parked!"

Two men, strangers, met on the golf links and agreed to play around the course together. After a couple of holes they got behind two very slow women. One man offered to ask the women if they might go ahead. When he returned he said he hadn't asked because just as he neared them he recognized his wife and girl friend. Understanding the situation the other gentleman offered to ask the ladies. In a few seconds he returned, only to comment, "Small world, isn't it?"

Fluffy: "Why did you run home last night?"

Flossy: "I was being chaste."

The prediction is that the next general election slogan of the political party in power will be: "Don't change horses, or any part thereof, in the middle of the stream."

"Young lady, you've married five men without getting a divorce," the judge said, "that's bigamy."

"Big of you, Judge? Don't you think it was pretty generous of me, too?"

First Young Matron: "When I got married I wore blue to show my faithfulness."

Second Young Matron: "When I got married I wore white to show my purity."

Third Young Matron: "When I got married I wore a business suit."

"Waltz a little faster, dear, they're playing a rhumba."

Texan—"Oklahoma is an outlying province of Texas."

Oklahoman—"That isn't so. No state can outlie Texas."

A man finally bought a parrot at an auction after some spirited bidding. "I suppose the bird talks," he said to the auctioneer.

"Talk?" was the reply. "He's been bidding against you for the past half hour."

One stenographer to another: "You'll like it here—lots of opportunity for advances."

A man was perched atop one of Atlanta's highest buildings, contemplating suicide, and a policeman had made his way to the roof to try and persuade the man not to jump. "Think of your mother and father," pleaded the officer.

"Haven't any."

"Think of your wife and children."

"Haven't any."

"Well, think of what your girl friend might think."

"I hate women."

"All right, think of Robert E. Lee."

"Who's he?"

"Go ahead and jump, you damn Yankee!"

"Do you know the difference between a popular girl and an unpopular one?"

"Yes and no."

"Wonder if I stopped the rock crusher at quitting time."

Continued from page 47

width or 25,000 lbs. per wheel. This roller has been used in compaction of earthfill dams, fills for airfield runways, caliche and crushed rock. It is furnished for either sand or cast-iron ballast. Extremely simple in design, maintenance is held to an absolute minimum.

Heavy-duty Paving Form

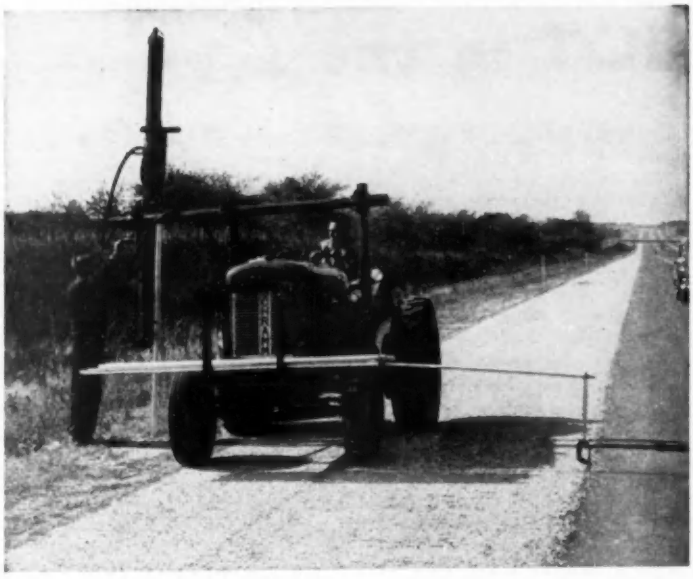
Manufacturer: Blaw-Knox Division of Blaw-Knox Co., Pittsburgh 22, Pa.

Claims: The new heavy-duty paving form has been developed especially for airport paving to meet the requirements of thicker pavement slabs needed to withstand the greater concentrated wheel loads of heavy bombers and cargo planes.

These heavy-duty, self-aligning paving forms are available in sizes above 12 inches and can be furnished in any height required by the specifications. They are made of ¼ inch steel plate of special analysis, with the width of the base equal to the height. The end of each 10-foot section is reinforced by a heavy angle welded to the base and web, through which beveled steel pins slide into pipe guides, providing a connection that is simple, rugged, and fast operating, yet aligns the forms perfectly under all conditions and maintains that alignment during the paving operation. These steel pins cannot fall out, and are beveled for easy entry into the pipe guide. A secondary staking system is provided to give additional lateral support to the form in soft or sandy subgrades.

A heavy, perforated steel bar supported by the stake pockets and welded to them, provides a rigid support for the ends of the pavement dowel bars. The spacing of the holes in this support and in the web of the form can be varied to meet specifications.

The Blaw-Knox heavy-duty, self-aligning paving form differs in design and utility from all other paving forms. The self-aligning feature permits rapid form setting, always true to line and grade, regardless of whether the steel stakes are bent or forced off plumb when driven into hard or stony subgrade. When the form is once placed on the prepared subgrade, no movement of the form will occur during the staking and wedging operation. This self-aligning feature allows faster work and greatly reduces the cost of form setting, since inexperienced form setters can do a rapid, accurate job.



Pneumatic Stake Driver

Manufacturer: Schramm Inc., West Chester, Pa.

Claims: The Pneumadriver is designed to drive stakes for snow fences, highway marker, vineyards, etc.

The machine is a 7 foot air feed with a paving breaker, for mounting on a Pneumatractor. The paving breaker is fitted with a steel shaped to fit the stakes that are to be driven.

The mounted Pneumadriver is used for the driving of steel or wooden fence posts in 1/10th the time required by the old hand methods. In this particular instance, the photo shows one of these units in operation on the New Jersey Turnpike. Originally, the contractor had to use crews of five to fifteen men to hand drive the "U" stakes and the "T" stakes on their respective jobs. The original estimate of the contractor for driving the stakes by hand was 4 stakes per hour, per man. With the aid of a Pneumadriver he was able to drive over 350 stakes per day with a two man crew, despite the traffic interruptions and interference from other construction work being done on the turnpike.

Bucket-Type Earth Drill

Manufacturer: California Welding & Blacksmith Shop, Inc., Los Angeles, Calif.

Claims: This new bucket-type earth drill bores 16 to 84 inch holes to a depth of 200 feet. The new Calweld earth drill Model 150-A removes 21.5 feet of earth per pass to speed up such varied jobs as are required in heavy duty construction, mining and oil field work. It digs caisson pier holes with belled footings, pre-bores concrete piles, drills water wells and cesspools, explores mineral deposits and tests soil conditions.

Every operation of the drill is me-

DREDGES

HYDRAULIC DIPPER CLAMSHELL

Bolted sectional steel hulls for landlocked, inland waters

If you need a dredge, write us!

AMERICAN STEEL DREDGE CO. INC.
FORT WAYNE 1 · INDIANA · U.S.A.

DESIGNERS AND BUILDERS OF DREDGING EQUIPMENT SINCE 1905

NEW

THE WORLD'S BIGGEST LOADING SHOVEL

MARION 191-M
10 cubic yards

- Loads trucks in the 50-ton class in 3 or 4 passes to meet big haulage problems.
- Big enough to load gondola rail cars quickly.
- Greater travel speed and maneuverability than most of smaller machines.
- All-electric or diesel electric power; Ward-Leonard control on both.
- A 10 cu. yd. heavy-duty shovel with small-machine cycle time.
- Largest two-belt crawler shovel built.

MARION POWER SHOVEL CO.
MARION, OHIO, U. S. A.

OFFICES AND WAREHOUSES IN ALL PRINCIPAL CITIES

from ¾ cu. yd. to 48 cu. yds.

chanically performed. A variety of interchangeable bucket-drills permit boring in almost every soil condition. All controls are centered in a single unit for raising the derrick, lowering the drill, lifting the bucket and powering the drill. Bucket is unloaded by a simple hand-tripping operation. Built on a skid frame, the drill can be mounted on any truck chassis two ton or larger.

Arc Welder

Manufacturer: Hobart Bros. Co., Troy, O.

Claims: This new gasoline engine driven arc welder has the control panel mounted on the end of the unit at the generator end. The control panel has been moved from the side to the end of the unit to centrally locate all controls for easier adjustment of the welding heat. On it are located the generator controls, meters, welding and ground cable terminals, polarity switch, ignition switch, starter button, oil pressure gauge, and battery ammeter, as well as the receptacle for 1 KW auxiliary power.

The generator is of the symmetrical, 4-pole multi-range design. There are four laminated main poles and four interpoles which are removable. Patented single unit brush rigging holds the generator and exciter brushes in a fixed neutral position.

Control of the 1,000 combinations of welding current and open circuit voltage is accomplished by the large wheel and volt-amp adjuster (field rheostat) within the large wheel. The ten main steps or ranges are selected by means of a heavy copper switch, moulded in bakelite, and is operated by the large hand wheel. The volt-amp adjuster provides 100 steps of fine adjustment in each of the ten main ranges.

Prompt building up of voltage, and freedom from accidental polarity reversal are assured by a special oversize, inbuilt, 4-pole exciter. This exciter is large enough to supply DC current in

excess of that required to excite the welding generator and this excess power can be used to operate lights and tools. This auxiliary power of 110 volts, 1 KW capacity is available thru a standard outlet receptacle on the control panel.

The generator is powered by a Chrysler industrial engine and includes a standard battery type ignition, charger and starting motor. Engine speed is controlled by a constant speed fly-ball type governor, operated by a V-belt from separate pulley on the engine crankshaft. To save fuel as well as wear and tear on the outfit, an idling device is provided to slow the engine down when the arc is broken and bring it up to operating speed when the arc is started. A mercury type time delay switch allows sufficient time to change electrodes without slowing down the engine.

The entire unit is enclosed in a weatherproof steel canopy with piano hinged side panels that can be padlocked in place if desired: This new gasoline engine driven welder is available stationary or mounted on a pneumatic tired four wheel trailer.

Additional information about this new Hobart welder may be obtained by writing the manufacturer.

Here is a Sauerman Slackline Cableway supplying a screening plant with 225 tons of gravel an hour. Pit is 900' long, 400' wide, 100' deep.

. . . *Slash your Handling costs with*

SAUERMAN MACHINES

Where materials are to be moved distances of several hundred feet or more, a Sauerman Drag Scraper or Cableway can cut the cost per cubic yard to a low figure because it is able to dig, haul and place the material in a continuous, straight-line operation, doing away with the expense of re-handling. The operation is smooth and rapid, producing large yardage with moderate expenditure of power.

The first cost of a Sauerman Machine is reasonable, maintenance amounts to very little, and the simplicity of operation makes it possible to place the control of even the largest installation in the hands of one operator.

Whether your project is large or small, there is a size and type of Sauerman machine suited to your requirements — a machine that will give you years of steady service at minimum expense.

Sauerman Scraper Excavator

Sauerman Scraper Stockpiler

Sauerman Slackline Cableway

★ *Write us about your interests and we will send illustrated catalogs by return mail.*

Rope Haulage Equipment Specialists Since 1909

SAUERMAN BROS., Inc.

574 S. Clinton St. Chicago 7, Illinois

New trade literature

Subject: **How to Absorb Shocks on Bucket Loaders.**

Content: A method of eliminating severe shock and vibration of hydraulically operated bucket loaders, power shovels, and other tracked or rubber tired equipment is described in a new Bulletin 700 just published. Since hydraulic fluid is practically incompressible, the vehicle itself must absorb impacts caused when the loaded bucket is moved or stopped suddenly, when the load is suddenly added or released, and when the loaded equipment moves over rough terrain. By installing a Greer hydropneumatic accumulator in the system, these shocks are absorbed. The accumulator also increases component life, relieves the equipment of structural fatigue, and increases production by adding to comfort of the operator. The accumulator consists of a steel shell containing a rubber bag precharged with gas. Hydraulic fluid forced into the shell through an oil port compresses the bag. Thus any sudden impact against the hydraulic fluid in the system forces oil into the shell where it is cushioned by the gas in the bag. The accumulators are made in 1,000 and 3,000 psi pressure ranges, ready for installation. Capacities range from 10 cubic inches to 10 gallons.

Where to get: Greer Hydraulics, Inc., 454 18th St., Brooklyn 15, N. Y.

Subject: **Scraper Bulletin**

Content: The new Wooldridge Model TC-S142 Terra Cobra self-propelled scraper is described in an 8-page bulletin just released. Operational features and mechanical details are shown in a series of sectional, cutaway and assembly views. The TC-S142 has a heaped capacity of 17.5 yards, and is powered by a 225 hp Cummins Diesel engine.

Where to get: Wooldridge Manufacturing Co., Sunnyvale, Calif.

Subject: **Steel Manufacturer's Story**

Content: In the book, called "This Is International Steel," all the facilities and many of the company products are outlined in a concise, quick-reference form. In this way, the company gives the builder a quick but accurate picture of what it can do for him. International Steel, of Evansville, Ind., specializes in steel fabrication. It also produces steel building products, warehouse steel, stainless steel, and many other products. International's purpose in releasing this book was to acquaint its customers with all of its various products. It was found that many regular customers were purchasing items elsewhere simply because they didn't know the company produced them. The 44-page "catalog of sources" contains no pictures of executive personnel.

Where to get: International Steel Co., Evansville, Ind.

Subject: **Economy With Diesel Engine Standardization**

Content: "Standardization — Key to Economy" is the title of a new 16-page booklet recently issued. This illustrated booklet shows how contractors and others who use earth-moving equipment and Diesel power can operate more economically, by standardizing. The booklet points out that the economy of having two or more like power units on the same job is the interchangeability of parts. The fact that some 97 manufacturers use "Cat" Diesel engines in their products adds to the effectiveness of this interchangeability.

Where to get: Caterpillar Tractor Co., Peoria 8, Ill. (Form 30243)

Subject: **Electrodes and Welding Alloys**

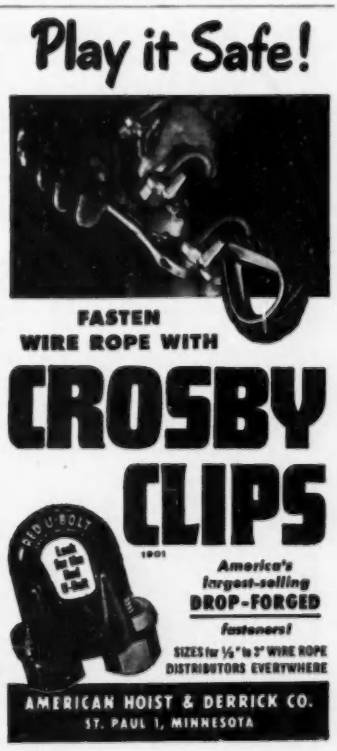
Content: A new, 16-page, illustrated "1952 Directory" of electrodes and welding alloys has been issued by Eutectic Welding Alloys Corp., Flushing, N. Y. The new booklet contains photographs, data and technical information on a series of Eutectic low temperature welding alloys for use on cast iron, steel, alloy steels, copper, brass, bronze, aluminum, magnesium, hard and machinable overlays and for cutting all metals. In addition, two full pages are devoted to a full chart of over 100 different welding alloys, their main uses, their bonding temperatures and their tensile strengths plus many valuable ideas on effective uses of welding.

Where to get: Eutectic Welding Alloys Corp., 172nd St. and Northern Boulevard, Flushing 58, N. Y.

Subject: **Compressed Air Uses**

Content: "Compressed Air Power In Construction," prepared by the committee on engineering education of the Compressed Air and Gas Institute, Cleveland, O., has just been released. This pamphlet is the second in a series of engineering studies. The first was a general treatise of compressed air equipment entitled, "Compressed Air Power. "Compressed Air Power In Construction," presents the many uses of compressed air in construction: bolting, cement spraying, conveying, demolition, digging, drilling, hoisting, paint spraying, pile driving, pumping, riveting, rock drilling, sawing, tamping, and vibrating concrete. The pamphlet describes and illustrates air-operated tools used in these construction phases and explains how that equipment operates and presents methods for measuring the equipment's performance. Because the air compressor is the source of power, the pamphlet also describes and illustrates the types of air compressing equipment used in the construction field, explaining how compressed air is distributed from the compressors to the tools. Rock drilling, as an example of presentation, is covered as follows: functional parts of the rock drill, sizes, weights and applications for hand-held rock drills; air consumption of drifter drills; types of detachable bits used for drilling and drilling procedure. The functional parts of the drill are presented in cross-section drawing and their operation discussed in the text.

Where to get: Compressed Air and Gas Institute, 1410 Terminal Tower, Cleveland 13, O.

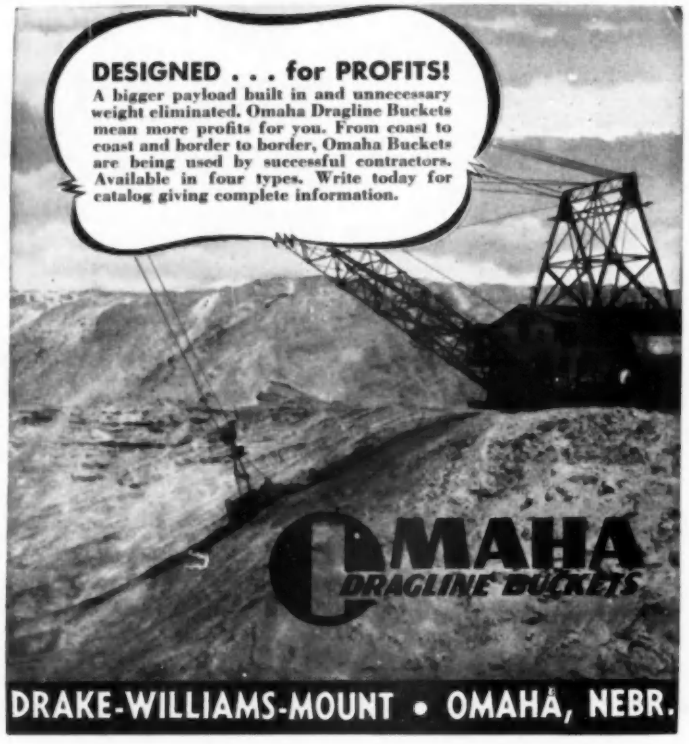


Notes from the manufacturers

Caterpillar Tractor Co., Peoria 8, Ill., announces an expansion program that will include a new factory in York, Pa., extensive additions to the Joliet, Ill., plant, and some improvements in the Peoria, Ill., plant. The York plant will be built on a site of approximately 180 acres just outside the city limits and will cover about 360,000 square feet of floor area. About 1,000 persons will be employed. Major additions to the Joliet plant will be a 230,000 square foot extension to the present manufacturing building, a separate parts building covering 280,000 square feet, and an addition to the heating plant. Over 1,900 people are already employed at Joliet and this number will be increased to over 3,000 next year. The major portion of the program will be financed with a long term loan of $35 million. The York plant will be devoted to the production of track and track roller parts, and will enable Caterpillar to utilize eastern sources of steel which do not now supply its factories in Illinois. The plant's entire output will be distributed to dealers in eastern United States and Canada and to export dealers served through East Coast ports. The addition to the present manufacturing building at Joliet will be devoted to the production of service parts and will not only increase the company's total output but will also permit certain Peoria facilities to be used more efficiently. A new die and fixture building is being built at Peoria to permit future improvement in the layout of equipment in certain other buildings, and to further improve the efficiency of several manufacturing operations. New office and shop buildings are being constructed at the proving grounds near East Peoria, to provide additional space and facilities for the research and engineering departments.

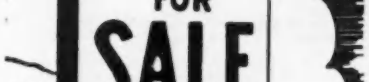
R. G. LeTourneau, Inc., Peoria, Ill., construction equipment manufacturer, announces the appointment of John H. Way as a company district sales representative. Way's sales territory will cover the states of Colorado, Wyoming, Montana and Idaho. Coming to LeTourneau in 1939, he left in 1942 to serve in the U. S. Army Air Force until 1945 as bombardier-navigator-radar instructor in various camps in the U. S. He subsequently joined the industrial division of B. F. Goodrich Co. as a district representative for New Mexico. From 1948 to 1951 he was a member of the sales staff of the LeTourneau distributor at Albuquerque. Way's headquarter city is Denver.

Huber Manufacturing Co., Marion, O., has appointed Don McPherson as district sales manager in the northeastern district, which takes in all of the New England states, Maryland, New Jersey, New York, Pennsylvania and Virginia. McPherson has been associated with the company since 1942. He began in the inspection department, handling final inspection and testing, and later transferred to the service department. Before his most recent assignment, he was assistant district sales manager in the southern states. For the present he will maintain offices at the home office in Marion, O. Huber manufactures a line of road maintenance equipment, including tandem and 3-wheel rollers, a 42½ hp maintainer, and a heavy duty grader.

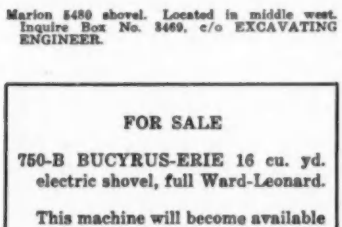

DESIGNED . . . for PROFITS!
A bigger payload built in and unnecessary weight eliminated. Omaha Dragline Buckets mean more profits for you. From coast to coast and border to border, Omaha Buckets are being used by successful contractors. Available in four types. Write today for catalog giving complete information.
OMAHA
DRAGLINE BUCKETS
DRAKE-WILLIAMS-MOUNT • OMAHA, NEBR.

Cummins Engine Co., Inc., Columbus, Ind., has reported that two of their executives returned recently from a five-weeks trip to Europe. They talked with dealers and others in the heavy-duty machinery business about the prospects of Diesel engine and Diesel-powered equipment sales as well as the general market potentials in the industries. Traveling by air between all major points, L. W. Beck and G. W. Glenn, stopped in 12 countries and visited with business contacts in nine of these countries on their 14,000 mile trip. They stopped in England, Scotland, Sweden, Belgium, Germany, France, Switzerland, Portugal and Spain. In several of these countries, they surveyed Diesel engine and other manufacturing facilities and talked with various industrialists about future market trends and manufacturing and distribution problems. Their discussions with numerous business and government representatives in nine different European countries emphasized the demand that exists for high output, high-speed, lightweight Diesel engines in the 100-600 hp field, especially for heavy earth moving equipment, shovels, cranes and similar machinery. In Sweden, the men made a tour of the Scania-Vabis plant at Sodertalje, near Stockholm, where

TO ADVERTISE: All advertising in this section is payable in advance. Rate: 60c per line, or $7.20 per inch of 12 lines. Minimum charge $2.40. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date — 15th of preceding month. Example: January closes December 15th.



TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.



Two four-year-old Lima Model 750 draglines. Both equipped with 70 foot boom, 2¼ cubic yard Page bucket, Caterpillar D-17000 engine, and long crawlers. Both machines recently overhauled and in good condition.
Location, Oklahoma — Box 3471

Marion 5480 shovel. Located in middle west. Inquire Box No. 3469, c/o EXCAVATING ENGINEER.

FOR SALE

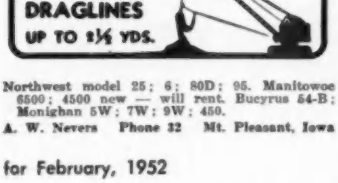
750-B BUCYRUS-ERIE 16 cu. yd. electric shovel, full Ward-Leonard.

This machine will become available in September, 1951. Good stock of spare parts. Located in Middlewest. Inquiry Box No. 3438, c/o EXCAVATING ENGINEER.

Bucyrus-Erie 750-B. Good operating condition. East central location; inquire Box 3460 c/o EXCAVATING ENGINEER.

Bucyrus-Erie Model 5-W diesel dragline.
Bucyrus-Erie Model 9-W diesel dragline.
Bucyrus-Erie 120-B Ward-Leonard electric shovel.
Bucyrus-Erie 44-B diesel shovel and dragline.
Western location. — Box 3463

Lima 1201 — 3½ yard diesel shovel including spare dipper and handle. Three years old, good operating condition. Located Northern Minnesota. — Box 3458



Northwest model 25; 6; 80D; 95. Manitowoc 6500; 4500 new — will rent. Bucyrus 54-B; Monighan 5W; 7W; 9W; 450.
A. W. Nevers — Phone 32 — Mt. Pleasant, Iowa

FOR SALE

15-B BUCYRUS-ERIE SHOVEL ATTACHMENT

Good Shape!

C. F. MALANKA & SONS, INC.
1317 Bergenline Ave. — Union City, N. J.

Model K-45 Link-Belt combination shovel, clamshell and dragline powered with Caterpillar D-13000 diesel engine, equipped with 23' boom, 16' handle, 1½ cubic yard Amsco dipper and 50' box type clamshell boom, Shop No. 1907. Machine new, January 1940 and in good operating condition today. — Box 3470

Bucyrus-Erie Model 15-B combination shovel backhoe. 28000 series serial number. Machine now working and represented in good condition.

D. D. Kennedy, Inc.
P. O. Box 278 — Bellwood, Illinois
Phone Chicago—Estebrook 8-5223

P&H Model 255-A, new 1948 ¾-yd dragline, Waukesha gas motor with 45 ft. boom including ¾-yd. Page dragline bucket, 26 inch treads, serial Number 12676; in good condition. — Box 3465

P&H Model 600 shovel and backhoe combination with gasoline engine. Capacity 1¼ cu. yd. Available for rent or sale. SALE PRICE FOB LOUISVILLE, KY. $8500.

Brandeis Machinery & Supply Co. Inc.
Brook and Warnock Sts. — Louisville 8, Ky.

Bucyrus-Erie 20-B backhoe with Cummins HB 400 diesel engine. Priced for quick sale.

Morris G. Laramie & Son, Inc.
16200 West Eight Mile Rd.
KEnwood 1-9322 — Detroit 35, Michigan

P&H Model 750 dragline and clamshell, serial 4497, 60' boom, 1¾ cu. yd. dragline bucket, oversize cats. Good operating condition. Available immediately.

Pipe Creek Stone Company
Phone 854 — Marion, Indiana

Insley Model K-12 new 1947 with Chrysler gas engine, 50 ft. boom, 15 ft. jib, ½-yd. combination dragline lifting crane and backhoe, machine in good condition. — Box 3466

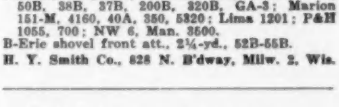
We Specialize
On Exclusively Used

mechanically sound, late model diesel Bucyrus-Erie and Northwest shovels, cranes, draglines and pullshovels. Our list of Bucyrus-Erie 15-B's, 22-B's, 38-B's and 54-B's and Northwest 25's, 6's, 80-D's and 95 machines is the most complete and comprehensive inventory of used machines of these models available. We also list walking draglines and all attachments.

J. C. French Company
226 Berry Parkway — Park Ridge, Illinois
Tel. TAcott 3-4927

Used Bucyrus-Erie Model 51-B two-cubic yard shovel; standard equipped; 30" threads; Caterpillar D-17,000 power; current model, new 1947; located Denver, Colorado. — Box 3462

Bucyrus-Erie 10-B dragline w/bucket No. 17899 Buda gas engine overhauled 1950; includes backhoe attachment 3 years old. Total price $7500 cash. Also 1944 KB-7 dump truck and home-made heavy low trailer for sale at $1000. Will sell 10-B complete w/truck and trailer for $8000.
Mrs. R. C. Henderson, 135-6th Ave., Marion, Ia.



Plymouth 35-ton gasoline locomotive, std. ga.
Whirley portal gantry cranes, elec. (4).
Floating derricks (3), 15, 50, 75 tons cap.
B-Erie H-3 Hydrocrane, 3-ton, used 3 mos.
Orton locomotive crane, diesel, 40 tons.
Walking draglines, 3, 5, 6, 7, 9 yds.
Locomotives, 7 to 80 tons, diesel gas.
Crushers: 36x48, 24x36, 18x32 jaw; 16", 30" gyratory; Pioneer, Lippmann gravel plants.
Cement bins (2), 100-ton & 400 bbls.
Euclid, Mack trucks, 15, 22 & 32 tons.
Shovels, draglines, cranes: Bucyrus-Erie 54B, 50B, 38B, 37B, 200B, 320B, GA-3; Marion 151-M, 4160, 40A, 350, 5320; Lima 1201; P&H 1055, 700; NW 6, Man. 3600.
B-Erie shovel front att., 2¼-yd., 52B-55B.
H. Y. Smith Co., 628 N. B'dway, Milw. 2, Wis.

HD-10-W Allis-Chalmers. Late 1947. Completely overhauled. A-1 condition.
Trailmobile trailer. International K-11 tractor. $8500.
D-4 Angle Caterpillar dozer. Fair condition. $1500.
Geist Const. Corp. — R. D. 1, Phillipsburg, N. J.

Buda HBL deep hole earth augering machine. Purchased in 1950 and used 150 days on U. S. Government job. Unit mounted on a 1½-ton 1941 Mack truck and capable of drilling 14" hole—60 ft. deep; 9" hole—90 ft. deep; 6" hole—150 ft. deep. Complete with 60 ft. of 14" flights and 100 ft. of 6" flights and all necessary operating tools. Unit in A-1 condition. Attractive price. Contact

Diehl Pump & Supply Company
800 Fehr Avenue
Louisville, Kentucky

McCarthy horizontal highwall drill.
McCarthy vertical highwall drill.
Lincoln welder on mount (with attachments).
2 Bulldosers.
2 LeTourneau Tournapulls.

Frank W. Albert
P. O. Box 291
Phillipsburg, Pa. — Phillipsburg 1461

Continued on page 56

For Sale

Continued from page 55

Bucyrus-Erie 22-B shovel attachment, new, unused; contact D. D. Kennedy, Inc., P. O. Box 278, Bellwood, Illinois, or phone Hillside 2520.

Bucyrus-Erie 22-B new shovel front, ¾ cu. yd. cast front dipper.

The Bode-Finn Company
2650 Spring Grove Avenue Cincinnati, Ohio
Phone MUlberry 2200

WANTED

Wanted: Good used Bucyrus-Erie 22-B transit crane. Give complete details in first letter.

Wm. H. Ziegler Co., Inc.
2929 University Avenue S. E.
Minneapolis 14, Minnesota

POSITIONS WANTED

Power shovel, backhoe and excavating equipment operator. A-1 mechanic, standard makes, Bucyrus-Erie preferred. Will go anywhere. Now located at Baltimore, Maryland. Box 3472

General superintendent or superintendent available; 30 years experience and qualifications; supervising, estimating, and building all types highways, airports, heavy excavating, large sewers, earth-filled dams, levies, covering several states. Honest, sober, and reliable, know cost and equipment. Interpret plans and organizing. Box 3464

If you are Buying or Selling Used Equipment this is the place to let the Excavating Industry know about it.

trucks and Diesel engines of Swedish-make are manufactured. They also toured the Saurer S.A. works at Arbon near Zurich in Switzerland, where trucks and engines also are made. They were impressed with production facilities and expansion activities in every plant visited. Despite a lack of automatic machinery, they found quality products being manufactured by highly skilled craftsmen. At the Rolls-Royce plant Beck and Glenn observed jet engines in various phases of assembly and they also were escorted on a tour of the firm's facilities where design and manufacture is in progress on a new high-speed, lightweight Rolls-Royce Diesel engine. Another highlight of their trip was a visit to the research department of the Mirrlees Co. at Cheshire where experimental work on large slow speed Diesel engines is being conducted.

Hercules Powder Co., Wilmington, Del., reports that two explosives experts are ending long careers with the company. They are: William C. Hunt, assistant general manager of the explosives department, and Cornell H. Cordie, manager of explosives development. Hunt's retirement ends a 43-year association with the explosives industry. Born in Sandusky, O., he attended schools there, and earned a B.S. degree in chemical engineering at the Case School of Applied Science in Cleveland. During his long career with Hercules, Hunt served as superintendent at several of the company's explosives manufacturing plants, and played a vital role in directing the chemical and engineering development of the entire company. He assumed the position of director of explosives operations in 1925. In 1945, he was named assistant general manager of the explosives department. Cordie is a native of Oil City, Pa., where he received his early schooling. He earned a B.S. degree in chemistry at Pennsylvania State College in 1906. After graduation, he worked in the chemical laboratories of explosives companies in Pennsylvania and Michigan. He was for a time a member of the Mine Accident Division of the U. S. Geological Survey, the division which was the nucleus of the present U. S. Bureau of Mines. Cordie joined Hercules in June, 1921, upon acquisition of the Aetna Explosives Co., of which Cordie was general superintendent. He was named manager of explosives development in 1934.

Mack Trucks, Inc., New York, N. Y. announces the election of Pierce J. Fleming, manager of the company's off-highway sales division, to vice president. A pioneer in the truck sales field, Fleming joined Mack in 1918 and served as district sales manager in Buffalo and Cincinnati before becoming district manager at St. Paul in 1938. He was transferred from that position in 1949 to take up his present duties. Fleming will continue to make his headquarters in the home office, Empire State Building, NYC.

Soil Testing Services, Inc., Chicago, Ill., announces the addition of Harold L. Woodsum to the engineering staff. He was formerly associated with the civil engineering department of Purdue University, Lafayette, Ind.

International Harvester Co., Chicago 1, Ill., has announced increases in the list prices of some of its light models of motor truck chassis. The revisions were made under the applicable OPS price regulations. The motor truck price increases apply to the company's L-110, L-120, L-130, and L-150 model series and range from 1.3% on one model of the 150 series to 3% on the L-130 series. Dollar increases amount to $30 on the L-110, $20 on the L-120, $40 on the L-130, and $20 on the L-150 models. Prices remain unchanged on the LB-140, L-160, and the LC-160 models, which are also included in the company's series of "light" motor truck models produced at its Springfield, O., works.

Frank G. Hough Co., Libertyville, Ill., has appointed Gene Thomas district representative covering the states of Washington, Oregon, Idaho, Montana and Wyoming. He will work with distributors in these states in the application of "Payloader" tractor-shovels to the contracting, public works, logging, mining and industrial fields. Thomas has been with the organization for 18 months training for his new duties. He is an engineering graduate of the University of Illinois and a marine veteran from the Pacific theater of World War II.

Salem Tool Co., Salem, O., have added to their plant capacity a new building 60 feet wide by 280 feet long, equipped with 25 ton overhead traveling cranes. Additional machine and welding equipment is being installed to enlarge their capacity for production of coal recovery drills and blast hole drills.

Malsbary Manufacturing Co., Oakland, Calif., maker of steam cleaners, announces the appointment of four new factory representatives: Charles W. (Bob) Gilmore, Philadelphia, to cover eastern Pennsylvania and southern New Jersey. James M. (Jim) Williams, Nashville, to cover Tennessee, Mississippi, Kentucky and Alabama. George Karikas, Cleveland, to cover Michigan, Ohio and western Pennsylvania. Robert L. (Bob) Garrison, Chicago, to cover Iowa, Illinois and Indiana.

Universal Form Clamp Co., Chicago 51, Ill., announces the promotion of D. M. DeCanio to general sales manager.

Here's Compressed-Air History

IN THE MAKING!

INTRODUCING A NEW ERA OF LOW-COST, HIGH-CAPACITY AIR POWER

Bridge Repair

Street Maintenance

Pile Driving

High Altitude Highway Construction

The Radically New

GYRO-FLOW 600
ROTARY AIR COMPRESSOR

is already proving its worth on all kinds of heavy duty jobs

Users say it's by far the most compact and smoothest running 600-cfm Portable they've ever seen. They are amazed at its ease and economy of operation—its smooth, stepless capacity control—rugged simplicity of construction and freedom from maintenance.

Yes, the radically new GYRO-FLOW 600 has already won its service stripes. Field reports prove that its advanced design rotary compressor—without pistons, valves or reciprocating parts—is far superior to anything heretofore available in the 600-cfm class.

For the complete story on this history-making I-R Portable, and the new Ingersoll-Rand FM-3 Wagon Drill see your nearest Ingersoll-Rand representative—or write to our New York office.

No other Portable Compressor like it

- No pistons—no valves—no vibration
- Discharge temperatures do not exceed 200° F. under normal conditions
- Two stage compression with oil injection cooling
- Stepless "Air-Glide" capacity control
- Powerful GM six-cylinder Diesel
- Weighs only 9500 lb. ready to run
- Delivers full 600 cfm at 100 psi

Ingersoll-Rand

11 Broadway, New York 4, N. Y. 625-2

THE LATEST ADDITION TO THE I-R CONTRACTORS' COMBINATION

This Lippmann GRIZZLY KING Jaw Crusher at Alabama Aggregate Company, Pelham, Alabama, has crushed 1,200,000 tons of tough Blue Ridge rock since it was installed. Discharge opening is 5 inches. The management reports that this tremendous output has been attained without interruptions — that the reversible jaw dies have not been touched, not even reversed.

No other jaw crusher can match GRIZZLY KING'S capacity and performance. Extra-long curved and reversible jaw dies, engineered crushing action with alloy steel frame and jaw add up to the rock-eatingest crusher on the market today. The GRIZZLY KING is the world's highest capacity overhead eccentric jaw crusher and is available in sizes up to 36" x 48" opening.

Other Lippmann equipment at Alabama Aggregate includes an apron feeder and discharge belt conveyor with Lippmann Life-Sealed Ball Bearing Idlers. Leading operators the world over choose Lippmann for their crushing, screening and washing plants both stationary and portable. It will pay *you* to do so too. Lippmann Engineering Works, 4611 W. Mitchell St., Milwaukee 14, Wisconsin.

LEW LIPPMANN

CRUSHERS FEEDERS SCREENS CONVEYORS CRUSHING & WASHING PLANTS